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"WHAT IS THE REASON," said an intelligent European horticulturist to us lately, "that the Americans employ so few evergreens in their ornamental plantations? Abroad, they are the trees most sought after, most highly prized, and most valued in landscape gardening; and that, too, in countries where the winters are comparatively mild and short. Here, in the northern United States, where this season is both long and severe, and where you have, in your forests, the finest evergreens, they are only sparingly introduced into lawns or pleasure grounds."

Our friend is right. There is a lamentable poverty of evergreens in the grounds of many country places in this country. Our plantations are mostly deciduous; and while there are thousands of persons who plant, in the country, such trashy trees (chiefly fit for towns,) as the ailanthus, there is not one planter in an hundred but contents himself with a few fir trees, as the sole representatives of the grand and rich foliaged family of evergreens.

They forget that, as summer dies, evergreens form the richest back-ground to the kaleidescope colouring of the changing autumn leaves; that in winter, they rob the chilly frost-king of his sternest terrors; that in spring, they give a southern and verdant character to the landscape in the first sunny day, when not even the earliest poplar or willow has burst its buds.

More than this,—to look at the useful as well as the picturesque, they are the body guards—the grenadiers—the outworks and fortifications—which properly defend the house and grounds from the cold winds, and the driving storms, that sweep pitilessly over unprotected places in many parts of the country. Well grown belts of evergreens—pines and firs, which

> ——"in conic forms arise,
> And with a pointed spear divide the skies,"

have, in their congregated strength, a power of shelter and protection that no inexperienced person can possibly understand, without actual experience and the evidence of his own senses. Many a place, almost uninhabitable from the rude blasts of wind that sweep over it, has been rendered comparatively calm and sheltered; many a garden, so exposed that the cultivation of tender trees and plants was almost impossible, has been rendered mild and genial in its climate by the growth of a close shelter, composed of masses and groups of evergreen trees.

Compared with England,—that country

whose parks and pleasure grounds are almost wholly evergreen, because her climate is so wonderfully congenial to their culture that dozens of species grow with the greatest luxuriance there, which neither France, Germany, nor the northern United States will produce; we say, compared with England, the *variety* of evergreens which it is possible for us to cultivate is quite limited. Still, though the variety is less, the general effect that may be produced is the same; and there is no apology for our neglecting, at least, the treasures that lie at our very gates, and by our road-sides—the fine indigenous trees of our country. These are within every one's reach; and even these, if properly introduced, would give a perpetual richness and beauty to our ornamental grounds, of which they are at this time, with partial exceptions, almost destitute.

As we are addressing ourselves, now, chiefly to beginners, or those who have hitherto neglected this branch of arboriculture, we may commence by mentioning, at the outset, *four evergreen trees* worthy of attention—indeed, of almost universal attention, in our ornamental plantations. Those are the *Hemlock*, the *White Pine*, the *Norway Spruce* and the *Balsam Fir*.

We place the Hemlock (*Abies canadensis*) first, as we consider it, beyond all question, the most graceful and beautiful evergreen tree commonly grown in this country. In its wild haunts, by the side of some steep mountain, or on the dark wooded banks of some deep valley, it is most often a grand and picturesque tree; when, as in some parts of the northern states, it covers countless acres of wild forest land, it becomes gloomy and monotonous. Hence, there are few of our readers, unfamiliar as they are with it but in these phases, who have the least idea of its striking beauty when grown *alone*, in a smooth lawn, its branches extending freely on all sides, and sweeping the ground, its loose spray and full feathery foliage floating freely in the air, and its proportions full of the finest symmetry and harmony. For airy gracefulness, and the absence of that stiffness more or less prevalent in most evergreens, we must be allowed, therefore, to claim the first place for the Hemlock, as a tree for the lawn or park.

Unfortunately, the Hemlock has the reputation of being a difficult tree to transplant; and though we have seen a thousand of them removed with scarcely the loss of half a dozen plants, yet we are bound to confess, that, with the ordinary rude handling of the common gardener, it is often impatient of removal. The truth is, all evergreens are far more tender *in their roots* than deciduous trees. They will not bear that exposure to the sun and air, even for a short period, which seems to have little effect upon most deciduous trees. Once fairly dried and shrivelled, their roots are slow to regain their former vital power, and the plant in consequence dies.

This point well understood and guarded against, the Hemlock is by no means a difficult tree to remove from the nurseries.* When taken from the woods, it is best done with a frozen ball of earth in winter; or, if the soil is sufficiently tenacious, with a damp ball in the spring, as has lately been recommended by one of our correspondents.

Of all the well known Pines, we give the preference to our native WHITE PINE, (*Pinus strobus*,) for ornamental purposes. The soft and agreeable hue of its pliant fo-

* In the nurseries this, and other evergreens, over four feet, should be regularly root pruned; i. e., the longest roots shortened with a spade every year. Treated thus, there is no difficulty whatever in removing trees of ten or twelve feet high.

liage, the excellent form of the tree, and its adaptation to a great variety of soils and sites, are all recommendations not easily overlooked.

Besides, it bears transplanting particularly well; and is, on this account also, more generally seen than any other species in our ornamental plantations. But its especial merit, as an ornamental tree, is the perpetually fine, rich, lively green of its foliage. In the northern states, many evergreens loose their bright colour in midwinter, owing to the severity of the cold; and though they regain it quickly in the first mild days of spring, yet this temporary *dinginess*, at the season when verdure is rarest and most prized, is, undeniably, a great defect. Both the Hemlock and the White Pine are exceptions. Even in the greatest depression of the thermometer, known to our neighbors on the "disputed boundary" line, we believe the verdure of these trees is the same fine unchanging green. Again, this thin summer growth is of such a soft and lively colour that they are, (unlike some of the other pines, the Red Cedar, etc.,) as pleasant to look upon, even in June, as any fresh and full foliaged deciduous tree, rejoicing in all its full breadth of new summer robes. We place the White Pine, therefore, among the first in the regards of the ornamental planter.

Perhaps the most popular foreign evergreen in this country is the NORWAY SPRUCE, (*Abies excelsa.*) In fact, it is so useful and valuable a tree, that it is destined to become much more popular still. So hardy, that it is used as a *nurse* plant, to break off the wind in exposed sites, and shelter more tender trees in young plantations; so readily adapting itself to any site, that it thrives upon all soils, from light sand, or dry gravel, to deep moist loam or clay; so accommodating in its habits, that it will grow under the shade of other trees, or in the most exposed positions; there is no planter of new places, or improver of old ones, who will not find it necessary to call it in to his assistance. Then, again, the variety of purposes for which this tree may be used is so indefinite. Certainly, there are few trees more strikingly picturesque than a fine Norway Spruce, 40 or 50 years old, towering up from a base of thick branches which droop and fall to the very lawn, and hang off in those depending curves which make it such a favorite with artists. (See our FRONTISPIECE, from *Loudon's Arboretum.*) Any one who wishes occular demonstration of the truth of this, will do well to *daguerreotype* in his mind, (for certainly, once seen, he can never forget them,) the fine specimens on the lawn at the seat of Col. PERKINS, near Boston; or two or three, still larger, and almost equally well developed, in the old Linnæan Garden of Mr. WINTER, at Flushing, Long Island.

The Norway Spruce, abroad, is thought to grow *rapidly* only on soils somewhat damp. But this is not the case in America. We saw, lately, a young plantation of them of 10 or 12 years growth, in the ground of Capt. FORBES of Milton Hill, near Boston, on very high and dry gravelly soil, many of which made leading shoots, last season, of three or four feet. Their growth may be greatly promoted, as indeed may that of all evergreens, by a liberal top-dressing of ashes, applied early every spring or autumn.

Little seems to be known in the United States, as yet, of the great value of the Norway Spruce for *hedges.* Our intelligent correspondent, Mr. NELSON, has described his experience with it abroad, and pointed out its capital points for this purpose, and the mode of growing it, in a previous page

of this journal, (p. 128.)* We have no doubt whatever, that it will soon become the favorite plant for *evergreen hedges*, as the Buckthorn and Osage Orange are already for deciduous hedges in this country. So hardy as to grow everywhere, so strong and bearing the shears so well as to form an almost impenetrable wall of foliage, it is precisely adapted to thousands of situations in the northern half of the Union, where an unfailing shelter, screen and barrier are wanted at *all seasons*.†

The Balsam Fir, (*Picea balsamea*,) or, as it is often called, the *Balm of Gilead* Fir, is a neat, dark green evergreen tree, perhaps more generally employed for small grounds and plantations than any other by our gardeners. In truth, it is better adapted to small gardens, yards, or narrow lawns, than for landscape gardening on a large scale, as its beauty is of a formal kind; and though the tree often grows to thirty or forty feet, its appearance is never more pleasing than when it is from ten to fifteen or twenty feet high. The dark green hue of its foliage, which is pretty constant at all seasons, and the comparative ease with which it is transplanted, will always commend it to the ornamental improver. But as a full grown tree, it is not to be compared for a moment, to any one of the tree species of evergreens that we have already noticed; since it becomes stiff and formal as it grows old, instead of graceful or picturesque, like the Hemlock, White Pine, or Norway Spruce. Its chief value is for shrubberies, small gardens, or courtyards, in a formal or regular style. The facility of obtaining it, added to the excellent colour of its foliage, and the great hardiness of the plant, induce us to give it a place among the four evergreens worthy of the universal attention of our ornamental planters.

The *Arbor Vitæ*, so useful for hedges and screens, is, we find, so rapidly becoming popular among our planters that it needs little further commendation.

Among the foreign evergreens worthy of attention, are the Chili Pine, (*Araucaria*,) the Cedar of Lebanon and the Deodar Cedar,—three very noble trees, already described in previous pages, and worthy of attention in the highest degree. The two first have stood the past winter well, in our own grounds, and are likely to prove quite hardy here.

For a rapid growing, bold, and picturesque evergreen, the Austrian Pine, (*Pinus Austriaca*,) is well deserving of attention. We find it remarkably hardy, adapting itself to all soils, (though said to grow naturally in Austria on the lightest sands.) A specimen here, grew nearly three feet last season; and its bold, stiff foliage is sufficiently marked to arrest the attention among all other evergreens.

* This plant may be had from six inches to two feet high at the English nurseries, at such extremely low prices per 1000 that our nurserymen can well afford to import and grow it a year or two in their grounds, and sell it wholesale for hedges, at rates that will place it in the reach of all planters. Autumn is the safest season to import it from England; as, if packed dry and shipped at that season, not ten plants in a thousand will die on the passage. We hope in a couple of years it will be obtainable, in large quantities, in every large nursery in America. We observe that Elwanger & Barry, at Rochester, advertise it at the present time as a hedge plant.

† "No tree," says the *Arboretum Britannicum*, "is better adapted than this for planting in narrow strips for *shelter* or *seclusion*: because, though the trees in the interior of the strip may become naked below, yet those from the outside will retain their branches from the ground upwards, and effectually prevent the eye from seeing through the screen. The tendency of the tree to preserve its lower branches renders it an excellent protection to game; and for this purpose, and also for the sake of its verdure during winter, when planted among deciduous trees and cut down to within five or six feet of the ground, it affords a very good and very beautiful undergrowth. The Norway Spruce bears the shears; and as it is of rapid growth, it makes excellent hedges for shelter in nursery gardens. Such hedges are not unfrequent in Switzerland, and also in Carpathia, and some parts of Baden and Bavaria. In 1844, there were spruce hedges in some gentlemen's grounds in the neighborhood of Moscow, between 30 feet and 40 feet high. At the Whim (near Edinburgh,) a Norway Spruce hedge was planted in 1823 with plants 10 feet high, put in 3 feet apart. The whole were cut down to 5 feet, and afterwards trimmed in a regular conical shape. The hedge, thus formed, was first cut on Jan. 25, the year after planting; and as the plants were found to sustain no injury, about the end of that month has been chosen for cutting it every year since. Every portion of this hedge is beautiful and green; and the annual growths are very short, giving the surface of this hedge a fine healthy appearance." [This is an excellent illustration of the capacity of this tree for being sheared; but good hedges are more easily and better formed by using plants about 18 inches or 2 feet high. Ed.)

The Swiss Stone Pine, (*Pinus cembra,*) we find also perfectly hardy in this latitude. This tree produces an eatable kernel, and though of comparatively slow growth, is certainly one of the most interesting of the pine family. The Italian Stone Pine, and the Pinaster, are also beautiful trees for the climate of Philadelphia. The grand and lofty pines of California, the largest and loftiest evergreen trees in the world, are not yet to be found, except as small specimens here and there in the gardens of curious collectors in the United States. But we hope, with our continually increasing intercourse with western America, fresh seeds will be procured by our nurserymen, and grown abundantly for sale. The great Californian Silver Fir, (*Picea grandis,*) grows 200 feet high, with cones 6 inches long, and fine silvery foliage; and the noble Silver Fir, (*P. nobilis,*) is scarcely less striking. "I spent three weeks," says Douglass, the botanical traveller, "in a forest composed of this tree, and, day by day, could not cease to admire it." Both these fine fir trees grow in Northern California, where they cover vast tracts of land, and, along with other species of pine, form grand and majestic features in the landscape of that country. The English have been before us in introducing these natives of our western shores; for we find them, though at high prices, now offered for sale in most of the large nurseries in Great Britain.

The most *beautiful* evergreen tree in America, and, perhaps,—when foliage, flowers and perfume are considered,—in the world, is the *Magnolia grandiflora* of our southern states. There, where it grows in the deep alluvial soil of some river valley, to the height of 70 or 80 feet, clothed with its large, thick, deep green, glossy leaves, like those of a gigantic Laurel, covered in the season of its bloom with large, pure white blossoms, that perfume the whole woods about it with their delicious odor; certainly, it presents a spectacle of unrivalled sylvan beauty. Much to be deplored is it, that north of New-York it will not bear the rigor of the winters, and that we are denied the pleasure of seeing it grow freely in the open air. At Philadelphia, it is quite hardy; and in the Bartram Garden, at Landreth's, and in various private grounds near that city, there are fine specimens 20 or 30 feet high, growing without protection and blooming every year.

Wherever the climate will permit the culture of this superb evergreen, the ornamental planter would be unpardonable, in our eyes, not to possess it in considerable abundance. There is a variety of it, originated from seed by the English, called the Exmouth Magnolia, (*M. g. exoninsis,*) which is rather hardier, and a much more abundant bloomer than the original species.

REMARKS ON STRAWBERRIES.

BY DR. WM. W. VALK, FLUSHING, L. I.

We pray the reader to keep cool, for both of us would rather eat strawberries than write about them; yet, as the strawberry question is not entirely settled, to the satisfaction of horticulturists generally and amateurs in particular, and we have no idea that the subject is as easily *finished* as some persons imagine, and, withal, even experienced cultivators are continually "falling into error," (out of which their friends are

most willing to keep them,) we naturally have a desire to "light our taper," which, though it be dim, may still cast one ray into the midst of darkness, as a beacon to the traveller through the mists and mazes of an ever changing labyrinth of words—*vox et præteria nihil.*

What is the strawberry question? It is, whether or not any varieties of the plant are *diœcious?* In other words, are there *male* and *female* plants of the *same* variety? These are the questions.

For the past two or three years, the matter has been freely discussed in books and periodicals, both horticultural and agricultural. It should be, therefore, settled, if possible, because it has an important bearing on the culture and improvement of an estimable fruit, and has led to the commission of great *mistakes*, by more than one nurseryman who had thousands of plants to dispose of.

A distinguished practical horticulturist, of Cincinnati, who has made the cultivation of the strawberry quite a hobby, and written a good deal upon the subject in dispute, strenuously maintains, that in many varieties there are perfectly distinct male and female plants. He speaks from ample experience, and supports his assertions by an appeal to facts,—all coming under his own personal observation. This is testimony of a very decided character.

Another gentleman, equally distinguished in horticulture, but not so practical as a strawberry grower, states—that the plants in their natural habits are *hermaphrodite;* i. e., they bear perfect flowers, with both male and female organs in the *same* flower, (as is *always* the case with the Alpine and European wood varieties,) and therefore every flower gives a perfect fruit; but, that the large growing strawberries, including our wild scarlets, the pines, and many other varieties raised from them, have a strong tendency, *when cultivated in a rich soil*, to vary from the natural state, being deficient either in stamens, (male organs,) or pistils, (female organs;) and hence, according to the deficiency, are called male and female plants; and further adds, that this imperfect state originates from *over luxuriance*, brought about by cultivation. Here are statements quite as positive as those preceding them.

The late venerable and eminently practical proprietor of the "Linnæan Botanic Garden," published in 1828, a "Short Treatise on Horticulture." It is the *father* who speaks—not the son. At page 72, he thus writes:—"As beds of strawberries want renewing every two or three years, it will be necessary, in forming the new beds, to select plants in the proportion of *nine bearing plants*, (pistillate ones,) *to one barren*, (staminate;) and in order to do this with certainty, it will be best to mark them when in fruit." This extract expressly recognizes the distinction contended for by many, of male and female plants. He also adds, that the English red Hautbois, and the Pine apple, are very apt to be overrun with male plants; beds of them, without proper attention, will become almost totally unproductive. These are the words of experience. In September, 1845, a correspondent of the Agriculturist, referring to a communication on this subject in a previous number, boldly confirms the Cincinnati theory, "*which fully accords with the views of the late Wm. Prince, as well as with his* (the writer's) *own experience.*" From the deep reflection and sound judgment of the late Wm. Prince, we think *his* opinion entitled to great weight; and the *present* opinion of the Agriculturist's correspondent may be worth consideration, though his experience must have been *very short*, and his opinion, though so

strongly expressed, *very recently* adopted; for upon referring to page 6 of a Catalogue for 1844, '45, we read as follows:—"*The silly twattle about male and female* (strawberry) *plants is calculated to grossly deceive the public, who cannot do worse than adopt any course in accordance with the suggestions arising from such ignorance.*" These two opinions, published by the same individual in the same year, are as contradictory as they well can be; nor can the least weight be attached to such puerile vacillations, though in 1847 the writer goes back to the *correct* opinion of his father, that it is indispensably necessary to accompany the pistillate varieties with about one-tenth of some staminate, to render them invariably productive. "This course was recommended in *our* (no, not *our*, the late Wm. Prince's) Treatise on Horticulture, published in 1828." It must cause the reader to smile, when putting *such* opinions in contrast. They form the climax of an extremely treacherous memory. *Quene Deus vult perdere, &c.*

Conflicting opinions have been expressed in the Boston "Magazine of Horticulture" by correspondents; and the editor thereof has undoubtedly changed his mind, with respect to the character of *his* (Hovey's) Seedling. In 1838, a communication appeared in the May number of the Magazine of Horticulture, wherein it is stated that there are separate fertile and barren plants; that in some plants the pistils are so few as to be scarcely visible, and in others no stamens are to be seen; and, that when the plants bear staminate flowers only, they are of course *barren;* when pistillate only, they are prolific. The recommendation was added, that for an abundant yield of fruit, one plant in eight or ten should be staminate, for the purpose of impregnating the pistillate or fertile ones; for if the latter only were grown, they would not bear at all. From such practical directions the inference is obvious, that the writer recognized the existence of separate male and female blossoms; and also, that the one staminate plant should be of the same variety as the eight or ten pistillates; thereby conceding that there may be both staminate, (*male,*) and pistillate, (*female,*) plants *of the same variety.* That *some* varieties of the strawberry are of this character, there can be no doubt, although a writer in the Horticulturist for October, 1847, (Senex,) asserts that there is not a diœcious plant in the whole order. He terms the doctrine "sheer nonsense," and says that the word diœcious should be used, in its *strict* sense; it would then mean, that Hovey's Seedling bore female (pistillate) flowers on one plant, and male (staminate) on another plant,—"an evident absurdity." Absurd and nonsensical as he asserts it to be, however, Mr. Tracy of Windsor, Vt., states (Horticulturist for August, 1847,) that he has grown Hovey's Seedling "decidedly staminate, and as decidedly pistillate." He was surprised, but there was "no mistake about the facts." To the same effect is the testimony of Mr. Allen of Winchester, Va., in Hovey's Magazine for August, 1843.

In Nov., 1843, Mr. Hovey thus expressed himself:—"We believe it is now the generally received opinion of all intelligent cultivators, that there is no necessity of making any distinction in regard to the sexual character of the plants when forming new beds. The idea of male and female flowers, first originated, we believe, by Mr. Longworth, of Ohio, is now considered as exploded; at least, so far as we have been able to learn, since the subject was agitated in our pages of last season, (1842,) *as well as from our own experience.*" Cultivation alone, says he, creates *sterile* or *fertile* plants; nor is there the least necessity of

cultivating any one strawberry near another to ensure fertility. Such was Mr. HOVEY's opinion in 1843.

In February, 1844, Mr. HUNTSMAN's views were published in Hovey's Magazine. This gentleman had observed the plant closely, and regarded it as anomalous in its diœcious character. Some varieties were perfect in both *male* and *female* organs; some perfect in male organs only, and some possessed, complete, only the rudiments of the fruit. The first are good bearers, though the fruit is small; the second are not worthy general cultivation; and the third are best of all, on account of great productiveness. Mr. HUNTSMAN's conclusions are, that one or more varieties of *pistillate* plants *will not* fruit unless impregnated by *staminate* plants, while others under favorable circumstances will. What the favorable circumstances are, he does not inform us.

Without any very material difference, Messrs. BAYNE and COIT hold the same opinions, as also Mr. JAMES. See Hovey's Magazine, November, 1843, and March, 1844. To the same effect is the testimony of Mr. GARBER, in August, 1844, and Mr. JACKSON, in November. All of them assent to the *male* and *female* theory; they have practically demonstrated it; and the latter gentleman does not consider Hovey's Seedling *worth growing* without a few *male* plants to fertilize it.

In 1846, Mr. HOVEY's views were somewhat modified from his expressed sentiments in 1843. He had cultivated the strawberry for twenty years, yet had not, until now, discovered that some sorts had a tendency to barrenness *when growing away from other kinds*, and that *these* should be fertilized by *staminate* (male) plants. This course would give a *certain crop*, regardless of "soil, climate, cultivation, injudicious selection of plants, or a normal defect in the organization of the flowers resulting in a deficiency of pollen." Three years before this, there was not the least necessity to grow any one strawberry near another to ensure fertility; now—there was a necessity for so doing. Experience had taught Mr. HOVEY in 1843, that there was *no necessity* for making any distinction of sexual character when forming new buds. Experience taught him, in 1846, that the one essential thing to produce fruit on his own seedling, was *the planting of perfect flowering kinds in near proximity.*

So much for opinions, and nothing would be easier than to multiply them; but to what good end shall they be recorded? conflicting, as they do, with *facts* known long since to professed botanists. Not a diœcious plant in the whole order—Rosaceœ? This is the opinion of *Senex*, in the Horticulturist, and he has termed it sheer non sense to say the contrary. But DON, Dr. LINDLEY, and a host of others, record the fact, that "the old Hautbois strawberry bears the *male and female flowers on different roots.*" Does not this make it diœcious in a *strict* sense? If not, will some one, well learned in botanical science, tell us what the word diœcious means? It may be altogether "silly twattle" to call things by their right names, and the very perfection of learning to be "all things by turns, and nothing long;" but that there are male and female strawberry plants, is as certain as that two and two make four. In 1843, a correspondent wrote to Dr. LINDLEY a letter of inquiry on this very subject. The Dr. thus replied:—"Those flowers which have the stamens large, and the pistils small, *are males;* when the pistil is large and prominent, and the stamens dwarfish, *they are females;* when the two are equally balanced, *they are hermaphrodite.*" Such

is the Doctor's precise language, and it is by no means obscure.

Let the reader pause and reflect on the statements made by all who have intended to set this matter in its true light, and he will perceive how wide of the mark most of them have come. Instead of clearing up difficulties, and looking only to the facts of the case, each has mounted his hobby, and not a few have been sadly thrown. What is experience worth when it contradicts itself? If words mean anything, and are used in their proper sense, there need be no misunderstanding as to their signification.

The strawberry belongs to the order *Icosandria Monogynia*, of Linnæus, the *Rosaceæ* of Jussieu. The stamens numerous. In this genus, what is called the fruit, is a fleshy receptacle or polyphore, with carpels (or seeds) appended to it. *Flowers hermaphrodite.* They are *naturally* so. Of this character, is—1, *Fragaria vesca*, with its varieties, *sylvestris* and *semperflorens*, *minor*, *hortensis*, *eflagellis*, *multiplex*, *botryformis*, and *muricata*. These varieties embrace the Red, White, American, and Danish *Alpine* Strawberry, the Red and White *Wood*, Red and White *Bush Alpine*, Frazier de Montreuil, &c.; 2, *F. calycina;* 3, *F. collina*, and varieties; and 4, *F. platanoides*, with *red* petals. Here we have the type *specific*, and *no cultivation* or *richness of soil will change it.* In some of these varieties, too, there are peculiarities worth noticing. In var. *botryformis*, the stamens are transformed into flowers; and in var. *muricata*, the petals are wanting. A few sub-varieties of *hortensis* have *black* fruit.

But there are other species, and a great many varieties, which, varying in the development of their sexual organization, *must be termed diœcious.* We say varying in their sexual development, because the flowers are *usually* diœcious; one or two species only have the flowers hermaphrodite. A definition of them, as a class, would read thus:—Carpels few, immersed in little pits in the receptacle. Stamens few. Flowers *usually* diœcious from abortion. The species are—1, *F. majaufea*, (hermaphrodite flowers;) 2, *F. breslingea;* and 3, *F. elatior.* There are two or three varieties of the first, six or seven of the second, and ten or twelve of the third. The *Hautbois* species and varieties are here included, (varieties of *F. elatior*,) and although they are the most variable of all strawberries, they still retain a general character from which they do not naturally depart. In all the sorts of *Hautbois* there exist prolific and sterile plants; these last have very long stamens; they are true *males.* In the variety *frasier framboise*, [European Wood Strawberries,] the flowers are *always* diœcious. In the *Hudson's Bay*, the flowers are larger than any of the others; the stamens long, and permanent round the base of the fruit, even to its full maturity. This variety must not be confounded with a variety of the scarlets of the same name.

We now come to the species *F. virginiana*, embracing, as varieties, all the scarlets, and the, so termed, black strawberries. The flowers are *always* diœcious from abortion; styles very long, receptacle very tumid. The varieties of the scarlets are very numerous, though but a few can be estimated as first rate sorts. The *Downton* and *Elton* are among the black varieties.

The species *F. grandiflora*, embraces all the, so called, *pine* strawberries, the *frasier ananas* of the French. The flowers *always* diœcious from abortion. Among the varieties we find the *Keen's Seedling* and the old *Carolina pine*, with about twenty others. *Turner's pine* is a variety.

F. chilensis forms another species. It is a native of South America, in Chili and Peru, and west coast of North America. Flowers *always* diœcious from imperfect development. There are eight or ten varieties, but none of them are worth cultivation; all are tender, bad bearers, and of indifferent quality.

We have still, as species, the *F. bonariensis*, *F. canadensis*, *F. sundaica*, and *F. monophylla*. The first may with propriety be referred to *F. grandiflora;* it is a native of Monte-Video and Buenos Ayres. Of the varieties of the other three but little is known; the F. monophylla has *hermaphrodite* flowers; it is the Frasier de Versailles of the French, and a worthless sort. If a classification were attempted, based upon the development of the floral organs, it might be thus stated:

The Alpines and Wood Strawberry,—*always hermaphrodite.*

The Scarlets and Black Strawberries, F. grandiflora and varieties, F. chilensis and varieties,—*always diœcious from abortion.*

The Hautbois and varieties, and what is called the Green Strawberry,—*usually diœcious from abortion.*

If this arrangement does not meet the views of all, let a better be substituted; for something of the kind has become the more necessary, as a consequence of the confusion now existing in relation to the strawberry question, but about which, to our mind, there is no question at all. There *are* male and female strawberry plants, and of the same variety, too, though friend Hovey emphatically says—*no!* and we can tell him, also, that there are kinds which *will* displace his seedling, though he may never yet have seen them.

Our views have now been given on the strawberry question; and, to our mind, it presents no difficulty, if disputants will but bear in mind that the diœcious character of *some* species, and of *all* varieties, is the result of accident rather than of fixed laws. The flowers proving abortive, failing to reach maturity in the developments necessary to perfect them, creates the necessity for sexual distinction, and, whether or not we know the reason, does not change the fact. Wm. W. Valk, M. D.

THE BEST MODE OF PRUNING THE PEACH.

BY A JERSEYMAN.

Mr. Downing—It seems to me that the promulgation of the improved mode of pruning, called the "*shortening-in*" mode, in the "Fruits and Fruit Trees of America," is one of the greatest benefits yet conferred on the thousands of cultivators of this best of all our fruits—the Peach.

I believe you state that this mode has long been known and practiced in Europe, and that the peach tree is hence a great deal longer lived there than in the United States. Be this as it may, I am sure that it was previously little known or practiced on standard trees in this country; that the great benefits that would result from it were beforehand quite unknown to the majority of our peach growers.

It is, indeed, the only scientific mode of pruning this tree; for the common way of thinning out the branches, practiced with little care or skill on most of our fruit trees, is particularly unsuited to this. No better

proof of this fact can be desired than one which I have every day before my own eyes. In my neighbor's grounds is a quantity of peach trees, six years old, which have never been pruned at all, except to thin out a few branches, which have borne two heavy crops, and already have that exhausted and lean appearance, indicative of feebleness and old age. The fruit which they bore last year was small, and comparatively flavorless. In my own garden I have a small plantation of peach trees, set at the same time as my neighbor's, but presenting a very different appearance indeed. They have been pruned for the past three years on the *shortening-in* mode. They have borne every year good crops of the largest and most delicious fruit to be found within my knowledge,—the crop regularly distributed over the branches. The trees are in most capital health; foliage deep green, and their shape, from the system of pruning adopted, round, bushy and symmetrical. Altogether, I am very proud of the effect of this mode of pruning upon my trees; and I assure you that many persons, who have come here to examine them, have gone away firmly resolved to "do likewise."

There cannot be a doubt that the peach tree exhausts itself, and is short lived in many soils, especially in those that are not deep and rich, by excessive over bearing. It is one of the great merits of the shortening-in mode, that by taking off a portion of the *ends* of every bearing shoot—that is to say, the young growth of the previous year—it effectually prevents this evil; since if you shorten-back the branch one-half, you necessarily take off one-half of the blossom buds, and diminish the probable crop of fruit one-half. This is treating the peach tree very nearly as it needs to be treated; for if one-half of the blossoms are thus taken off, it leaves the tree provided with just so many as it can carry regularly, every year, without exhausting itself; and the fruit that is left is much larger, and a great deal more delicious than if the tree goes unpruned, and bears a full crop. This I have twice satisfied myself of by direct experiment, on trees side by side, of the same variety; and you could scarcely credit the improved quality of the pruned tree, without camparing them.

One of my acquaintances, who is an intelligent orchardist, and grows peaches for market on a large scale, now makes his trees branch out, or form their heads quite low, and shortens-them-in with a pair of large *hedge-shears*, (the blade two feet long,) fastened on long handles. In this way it is but a short job to prune a whole orchard.

I have used wood ashes as a manure for peach trees with the greatest benefit. It gives them a particularly healthy and sound look; that is, without becoming gross, or over-luxuriant, they make a moderate growth of good plump shoots, have very healthy foliage, bear high coloured and well ripened crops.

I use wood ashes, either leached or unleached. The former is, if quite fresh, about three times as strong as the latter; and, therefore, while half a peck of unleached is sufficient, usually, for a young tree just beginning to bear, I have found half a bushel not too much of the leached ashes. It ought to be spread over the surface, and dug in a few inches only. Probably the best time of applying it is in October; but I have also found it to answer admirably as late as June,—very soon, if the season is a rainy one, changing the common colour of the leaves to a deep emerald hue.

I have so high an opinion of the good effect of ashes, that, (agreeing with you, that the yellows is only disease, caused by

bad treatment and exhaustion,) I feel almost certain that the shortening-in mode of pruning, and the use of ashes, will drive this malady out of the country, if cultivators can be brought to estimate properly their joint value.

It is, no doubt, *best* to prune the peach tree early; but, as I have seen no bad effects whatever from shortening-in as late as the middle of May, I advise such of your readers as may not have performed that operation already, on their peach trees, to take knife in hand and sally forth immediately. Yours. A JERSEYMAN.

TO RAISE GOOD VEGETABLES IN OLD GARDEN SOIL.

BY A CONSTANT READER, NEW-YORK.

DEAR SIR: I presume there are many persons, like myself, who have in their possession old kitchen gardens, in which, although the soil is rich, and appears in excellent condition, yet it is extremely difficult to get good crops of certain vegetables. I suppose this is owing to the long time that the soil has been under cultivation; for I have noticed, in my travels in the western states, that in many of those parts every species of our garden vegetables grows astonishingly well there, and to such a size, and in such abundance, as almost surpasses belief. The cultivation required there is scarcely worth the name. They just turn over the soil, deposit the seeds, and dress the plants out once, and a most abundant supply is the result.

This is, no doubt, owing to the perfectly new soil, unexhausted of its fertility, and naturally abounding with vegetable substances, ready to be converted into food for plants.

Now in our old gardens, on the sea-board, certain kinds of vegetables, as beets and potatoes, are easily grown year after year in the same soil, and give us regular and good crops. But there are also some sorts, like the bush bean, the cauliflower, etc., which are brought to perfection with a great deal of trouble, and are almost always unsatisfactory crops.

I take it, that this is owing to the long continued culture of the soil; and that there is something in new soil quite different from manure that these plants require, and will not grow without.

Probably a little experiment, which I have made in my garden for two or three years past, will serve to exemplify this. Taking this view of the matter,—that certain vegetables wanted a fresher soil than that of an old kitchen garden, I thought I would, perhaps, be able to supply it by bringing up some of the *subsoil*, which had never seen the light, and mixing it with the old soil of my garden. As I did not care to go to the expense of trenching my whole kitchen garden upon an uncertainty, I made my first experiment by trenching a plat of it, upon which I intended to plant bush beans. This I did directly before planting. I had the ground dug to the depth of two spades and a half, (say about two feet,) and the old soil of the top well intermingled with the subsoil throughout. I had a fair coat of stable manure spread over the soil before the trenching commenced, which, of course, was incorporated with the whole. I judged this necessary, as the subsoil is a

gravelly loam, of a poor and hungry quality. When the plat was finished, the soil had an appearance of poverty by no means prepossessing. But I planted my beans, and had the satisfaction of seeing them grow vigorously and *produce most abundant crops*. The difference, indeed, between the product on this piece of trenched ground and another patch of beans in the old soil of my garden, the same season, was in favor of the trenched soil *fifty to one*.

This was three years ago; and I have had excellent crops on this quarter ever since. Two years ago, encouraged by the success of the foregoing experiment, I prepared my cauliflower quarter in the same way, with equally good results. Almost every plant, put out in this renovated soil, headed well; whereas, before that, not more than half or a third would usually form flower heads at all.

As many persons cannot well afford to trench their whole kitchen garden at once, and may not be aware of the good effects of trenching a small part of it at a time, pray oblige them and me by publishing this, to show them its good results.

Yours. A CONSTANT READER.

P. S. I think, from comparison with experiments of the same kind, made by a neighbor, that the good effect is somewhat increased by trenching in the *fall*, rather than the spring, though I have found the latter time a good one.

ANNUAL ROOT-CUTTING OF CERTAIN FRUIT-BEARING PLANTS.

BY R. ERRINGTON.*

IT certainly appears at first sight a bold recommendation, to advise cutting away those valuable organs destined by Nature to acquire sustenance for the vegetable structure. When, however, the reasons are carefully examined, it will, I think, be perceived, that such a practice under certain circumstances must be productive of decided benefit; more especially with regard to flavor in the fruit. Some distinction should be here drawn, in order to throw light on the matter, between those fruit-bearing shrubs or trees which produce their fruit chiefly on the young shoots of the preceding year, and those which produce principally from what the gardener terms "spurs." In casting a glance over fruit-bearing trees or plants in general, it will be obvious that with few and trifling exceptions, Nature has in this respect marked out two classes in broad and well defined characters.

In order to convey a ready idea of these two classes to those who are not practically engaged in gardening, I would adduce the following, viz:—

Fruits bearing chiefly on the spur:
- The apricot;
- The red and white currant;
- The plum; and

Fruits bearing chiefly on the young wood:
- The gooseberry;
- The vine;
- The black currant;
- The raspberry.

These will suffice to throw light on the matter in hand.

The first thing I would observe is, that from the circumstance of the spurs being for the most part situated on or near to the main stems, any undue extension of the young shoots above and around must of necessity produce such an amount of shade in the neighborhood of the spurs as cannot do otherwise than end in barrenness. The chances of light, in fact, to the home spurs of a gross red currant bush are about as great as to those of a tuft of fern in a dense wood. Who can wonder, then, at such

* From the Journal of the London Horticultural Society.

bushes becoming gradually denuded of spurs, or at their bearing badly coloured and worse flavored fruit?

As to the other class, the blossoms being formed on the annual shoots, are in precisely the situation most congenial as to light, and will also bear high cultivation much better than the former.

With regard to annual root-cutting, I must here observe, that the necessity for it will not arise on poor and unmanured soils; it is chiefly in our kitchen gardens, where, from a long course of tillage, accompanied by very frequent manurings, the soil has become what is commonly termed effete; by which we understand, that the mechanical texture is altered, partly through the decomposition of vegetable fibre, and partly, I believe, through the loss of inorganic constituents.

To give an instance; let us examine the common red currant. This it is well known has a greater tendency to produce what is termed "watery wood" than the white. Now on rich soils it will sometimes produce shoots of two feet in length during the first three weeks in June: the rapidity, in fact, with which such growth is made, might not inaptly be termed propulsion.

Now what is the consequence? The fruit, with the various tufts of leaves by which it is accompanied, is thrown into the most intense shade; and in proportion to the extreme grossness of the bush will the berries be found of a diminutive size and destitute of flavor. Nor does the evil end here, for the blossom spurs, intended to produce succeeding crops, and which need the fertilising agencies of light more than the fruit, are hereby rendered barren, or totally destroyed. And hence it is no uncommon thing in gardens to see huge currant bushes, showing signs of great age and vigor, destitute of fruit, with the exception of a mere tuft at the extremity.

Again, with regard to the strawberry; how frequently do we meet with exceedingly gross beds or plantations bearing little fruit, yet possessing enormous leaves! If much manure is dug into the soil at planting time, and the plants are placed too thick, this is sure to happen. It may not the first season, but will assuredly take place as soon as the plants crowd each other.

We find the cultivation of this valuable fruit very much improved within the last twenty years; and why? because prior to that, the importance of light was so much underrated. Few persons think of planting them thickly in beds at this period: and we shall find that the farther they are planted apart the finer will the produce be. The finest Keen's Seedlings I ever saw were four feet apart between the rows, and three feet between each plant. Each plant formed a huge isolated mound; and the quantity and size of the fruit were indeed most extraordinary. I have also seen the prolific hautboy thus treated, with a similar amount of success. This I confess astonished me more at that period than the Keen's; for in my younger days we were taught in the neighborhood of London, that the hautboy would only succeed in beds. Nor is this grossness, with thick planting, inimical to their bearing properties alone; deterioration of flavor is a sure consequence. The ripening period of the strawberry — the month of July — is very often a cloudy and wet period; and I have frequently known in crowded and luxuriant plantations of strawberries from fifty to seventy per cent. of the fruit actually rot on the ground. In such periods what an advantage thin planting possesses! If bright skies intervene the latter readily become dry, whilst the former will scarcely receive benefit. If strawberries are planted on good loamy soils, well trenched, with little or no manure, they will be found very different in character to those on light and highly manured soils; the whole plant will be more compact, the leaves smaller in circumference, yet thicker, and the plant will moreover endure periods of drouth much better.

Having now pointed out the evil effects of grossness, as tending to barrenness and loss of flavor, I come to the point from which I set out, viz., to recommend what I have practiced for years under such circumstances, and I think I may say always succeeded with, or at least it has always produced the result I anticipated. Let it not, however, be supposed for a moment that I advocate so foolish and prodigal a system as first to over-excite fruit-bearing trees by manures, and then to cut away their roots: by no means; I merely suggest a mode of

treatment for pampered subjects which it is not deemed expedient to destroy off hand.

The root-cutting I recommend for the currant is practiced at the extremities of the fibres, and is a matter of great simplicity. A line is stretched parallel with the row, at about thirty inches from the stems (if strong bushes,) and the line "chopped out." The line being removed, a trench is opened at one end, and a deep spit dug out, nearly to the bottom of the roots, and placed aside, similar to the manner of making a celery trench. All roots on the farther side of the line, from the tree, are cut entirely away, and the trench merely filled again with the ordinary soil of the garden, which lies close at hand, and for which the excavated soil is substituted. This operation should be performed as soon as the leaves are fallen, in order that the bush may commence a series of fresh roots, to meet the demands of the coming spring. Now although I advocate cutting the extremities, I never dig over the surface roots of my bushes; these remain untouched, and even receive a top-dressing, when necessary, of half decayed tree leaves, more in order to coax the roots to the surface than for the sake of manuring.

In cutting the strawberries, my practice is to trim away all superfluous runners in the end of August; by which means the principal leaves of the mother plant dislodge themselves and separate, and thereby expose a much greater amount of surface to the light to ripen the bud for the ensuing crop. About the middle of October, a slight dressing of half rotten manure, chiefly leaf soil, is scattered over the surface of the ground; and the centre, between each two rows, merely one spit in width, is deeply dug; cutting of course all roots that lie within such boundary. I have always found this course to produce precisely the effects that might reasonably be anticipated, viz., a temporary reduction of grossness in the foliage whilst the new leaves are forming in the ensuing spring; with an acquisition of fresh young fibres by the time the greatest demand is made on the energies of the plant, viz., the swelling period of the fruit. Indeed, such good results have I ever found to follow this practice, that I am of opinion that a plot of strawberries may be kept in a tolerable prosperity for many years by thus annually digging and manuring.

DESIGN FOR A SMALL FLOWER GARDEN.

The old geometric flower gardens, laid out with long beds, bordered with box, and separated by stiff gravel walks, are fast giving place to those more tasteful combinations of *masses* of gay, perpetual flowering plants, arranged upon turf, in the arabesque or English style.

In the former, you have a miscellaneous collection of plants, of all sizes and habits of growth, only a small part of which are seen in bloom at one time; while at almost all seasons naked stalks of plants, and bare dry soil of borders, appear here and there, almost in spite of the best efforts of the gardener, to disfigure and mar the general elegance of the scene.

In the latter, you have always the rich setting of the soft green turf, (which, of course, mown once a fortnight, is short and velvet-like;) and contrasting and enhanced in effect by this, are seen the beds of dwarfish plants, grown in masses, so as to give breadth and brilliancy of effect; these being composed only of plants almost perpetually in bloom, unite to form a floral picture, when well managed, as beautiful as the art of gardening will permit.

The following little plan of a flower garden, of this kind, on a small scale, is adopted from one of the designs of our late friend, Mr. Loudon. It is supposed to be formed in a plot of smooth level lawn, and

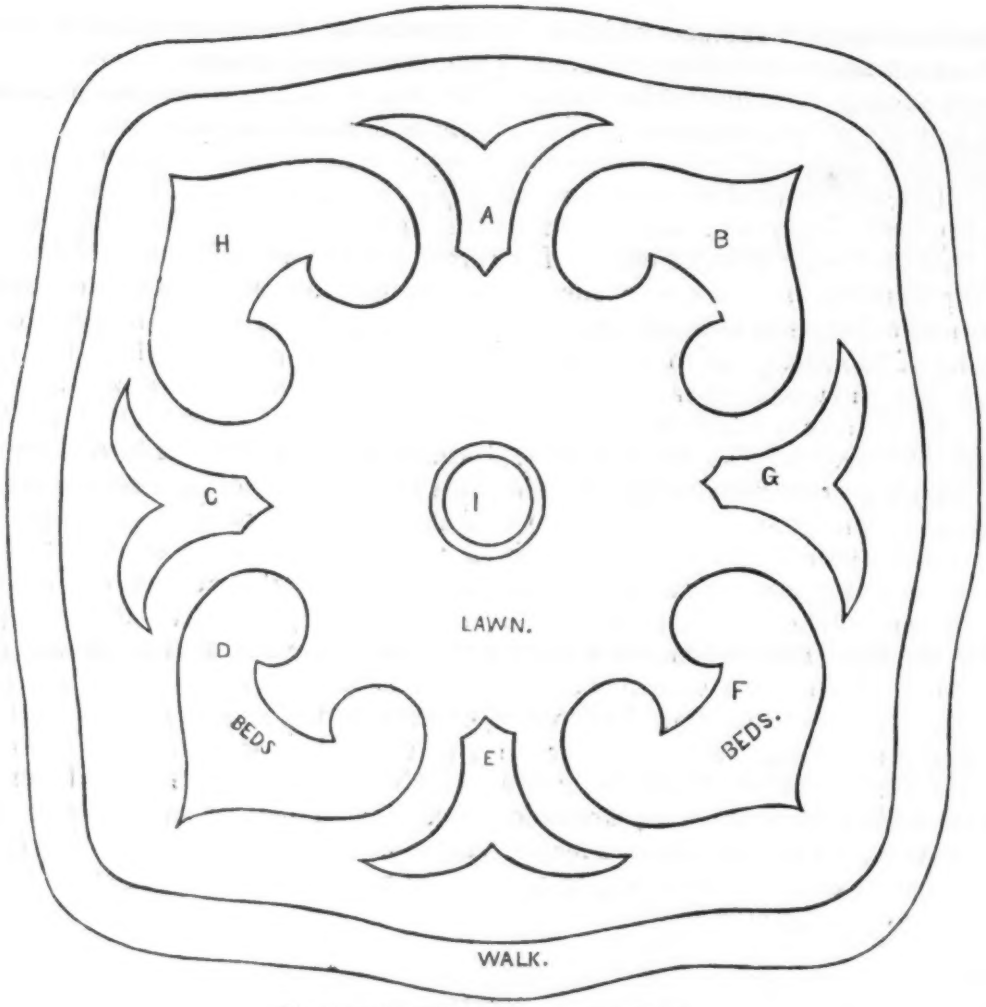

Fig. 58.—*A Small Arabesque Flower Garden.*

to be surrounded by a boundary walk, which may, or may not, be backed by a belt of evergreens and flowering shrubs. In the former case, it would make a complete little scene by itself in a portion of the garden or grounds.

In designs of this kind, of course, a good deal of the beauty depends on the arabesque beds being filled with plants of *dwarfish* habit, so as to enable the eye to seize the elegant effect of the *whole* group of beds at once. In order to attain this, any roses, or other plants, inclined to grow above eight or ten inches in height, should be *pegged down;* that is, the shoots bent down to the surface and confined there as fast as they grow. In this way the whole bed will be filled with foliage, and *no part of the surface* of the soil will be visible; a *sine qua non* in this mode of management.

In making a selection of plants for this little garden, we have supposed the four largest beds to be filled with ever blooming roses. These are, in our opinien, the *gems* of all flower gardens in this climate; and as the finest sorts, originated within the last ten years, (which may now be had at most of the nurseries,) are unsurpassed in beauty of form, colour and fragrance, by any other flowers whatever, we think them far more indispensable in a small flower garden than the choicest perennials.

The centre of this garden, *i*, is supposed to be occupied by a vase, or a fountain. The arabesque beds are then appropriated as follows:

A. The finest Scarlet Verbenas.
B. Bourbon Roses.
C. Hebe Petunias.
D. Bengal Roses.
E. The finest White Verbenas.
F. Tea Roses.
G. The finest large Purple Petunias.
H. Noisette Roses.

To give additional variety and effect we would sow, every spring, the seeds of the following *annuals*, of dwarf growth, between the roses in the four largest beds, so as to completely cover the surface of the same, viz:

B. With Portulaccas, purple, scarlet and white.
D. With Sweet Alyssum.
F. With Nemophila insignis and Mignonette.
H. With Convolvulus minor.

This little design would, though composed of such limited materials, have at all times a gay and charming effect. It will not be too late to carry it into execution even when this number appears; and if the beds are pretty thickly planted, (the roses turned out of pots,) its effect will begin to be enjoyed in a few weeks, and the whole will be in full beauty during the latter part of the summer, and the entire autumn.

HOW TO MAKE THE PLUM, APRICOT AND NECTARINE HOLD THEIR FRUIT.

BY A PENNSYLVANIA SUBSCRIBER.

[The following mode of treating the plum, and other stone fruit trees, is not entirely new to us, as we have had similar successful accounts of trials on a smaller scale, from other portions of the country, and think very favorably of the plan adopted by our correspondent. Ed.]

I believe there are many parts of the country where the finer stone fruits, the plum, the apricot and the nectarine, are of little value, because they seldom mature a good crop of fruit. At least, this is the case in the mellow sandy soil which I cultivate, and in many parts of New-Jersey and Pennsylvania.

The trees grow as finely as any one could wish, blossom abundantly, and set good crops of fruit; but such is the power of the wily little eneny, the curculio, which stings the young fruit just after the blossom falls, that often not one in a thousand escapes, and the poor fruit cultivator has the mortification of seeing a handsome crop all tumble to the ground before they, the plums, are two-thirds grown.

Looking upon this as a very great and serious evil, I want to lay before you my practice, which I have fully satisfied myself of the value of, in raising good crops every year of these stone fruits, where, in the common garden or orchard, they are a complete failure.

About ten years ago my attention was drawn to a plum tree in my neighborhood, which was rather celebrated as the only one that bore large crops of beautiful plums for several miles round. It stood behind the garden of a farmer, and just between two large hog pens. I might say, indeed, in the midst of a pen; as there was hardly a space of two feet between the pens in which the tree grew. Well, this tree, as I have said, was loaded with the finest imaginable fruit, and the curculio did not appear to attack it in the least, while no other plum trees, on the premises, bore any crops of fruit except the common preserving *damson*.

Drawing the inference, that the swine destroyed or drove away the curculio, I immediately set about putting the informa-

tion so derived into practice. I had already a few plum trees standing near my farm buildings, and I immediately planted others there, so as to make a small orchard of that spot, entirely devoted to plum trees; adding, by way of experiment, a few apricots and nectarines. I ought to say that I had hitherto failed, if possible, even more completely with these two latter beautiful fruits than with the plum.

In this small orchard of stone fruit trees, comprising, altogether, perhaps thirty trees, at fifteen feet apart, as soon as the trees came into a bearing state, I directly turned my hogs. I took the precaution, (by the by, a most necessary one, every year,) to have the trunks of the trees closely boarded round, about three feet high, to prevent the hogs from barking them, as they certainly would. The first year the trees set only a tolerable crop; some of the curculio marks being visible on the fruit. But the second year I had a fine crop, and every year since, without a single exception, I have been able to gather a good crop of very fine plums. The apricots and nectarines have borne equally well, though sometimes the fruit of the latter tree has shrivelled from some cause unknown to me.

To be more definite, I ought to add that I have found it best to allow the hogs to "have the run" of the orchard for stone fruit all the year, with the exception of about two or three months. I shut them out as soon as the fruit is fully grown, and begins to turn colour, and approach maturity. This enables me to put the orchard in something like a *visitable* condition for any of my family who themselves wish to gather fine and luscious plums, apricots and nectarines. I keep the hogs out until the latest ripening plums and nectarines are past, when they are again allowed free range of it. In order to accomplish this exactly to my mind, I have my hog pen proper on one side of the orchard, with two doors; one door leading into the orchard, and the other into a small enclosure or yard, which they have the run of only when they are shut out of their regular quarters—the orchard.

As I understand it, the hogs in the outset devour all the plums, &c., that drop from the trees in June and July, (as all the insect punctured ones infallibly do.) In this way, they effectually prevent the increase of this insect; since, if the fruit is allowed to remain on the ground, the young maggots soon leave it and go into the ground, where they stay till the time comes round for them to rise out of it to sting the fruit again. By continually rooting in the soil, the hogs not only keep it mellow, and, in the main, free from weeds, but they destroy any grubs of insects that still remain in it; while the manure they furnish to the trees appears to be very much adapted to promote their growth, and keep them in good health.

I cannot, of course, undertake to say that in a crowded neighborhood, much infested with the curculio, this mode would completely answer the purpose of securing a good crop, because it is well known that this insect is somewhat migratory, though I think it never flies far. But I can say that at my place, some miles distant in the country, where, however, all the farmers round cultivate the plum unsuccessfully, I have had very full success by following the mode pointed out.

I have observed, in a previous number of your journal, that both a correspondent and yourself recommend depositing a pile of fresh stable manure round the trunks of plum trees, just before they come into blossom, or soon after, in order to prevent the insects from attacking the fruit by the

odor which rises from the manure. It has struck me since, that something of the same effect may follow from making a swine yard of a small stone fruit orchard. I find that a dozen hogs, kept in a space large enough for twenty or thirty trees, give it, for the time it is occupied by them, quite an atmosphere of their own, which the delicate nerves of the curculio may not be able to bear. Respectfully thy friend.

A PENNSYLVANIA SUBSCRIBER.

Philadelphia, 4th mo., 1848.

THE LARGE FLOWERED TECOMA.

ONE of the most showy and magnificent of all our climbing shrubs, is the Large-flowered Tecoma, [*Tecoma grandiflora,*] a native of China and Japan, but now to be found in many gardens in this country.

This plant closely resembles, in its foliage and manner of growth, the well known Trumpet flower or Trumpet creeper, [Tecoma radicans,*] a native of the southern states, whose large clusters of reddish-orange coloured, trumpet shaped flowers are produced in profusion all the latter part of the summer.

But the *Tecoma grandiflora* is a much more showy and beautiful plant than the old species. In the growth of the wood, it is rather more slender, and the leaves more coarsely serrated than those of B. radicans. The vine has the same habit of attaching itself firmly to a wall, or building of stone, brick, or wood, or to the trunk of a tree within its reach, by the numerous small air-rootlets which it sends out from the inner side of its young shoots.

In the blossoms of the *Tecoma grandiflora*, however, lies its peculiar beauty. These are produced, in a great profusion of clusters, in July and August, so as to give the whole plant an exceedingly gay and lively appearance. They are not long and tubular, like those of the common trumpet flower, but somewhat cup-shaped, and about a third larger than is represented in the annexed cut. The colour is beautifully varied; the outside being a rich pure orange colour, and the inside a rich orange-scarlet, marked with brighter streaks. These gay clusters open their blossoms in succession, so as to keep up a brilliant appearance for a long time; and we are acquainted with no climbing shrub, except the Chinese Wistaria, which at all vies in elegance or brilliancy of effect, in the garden or pleasure ground, with this, during the season of its bloom. Last season we counted over three hundred in bloom, at once, upon a plant in our neighborhood; and the same profusive display continued for a fortnight or more.

The *Tecoma grandiflora* may be grown with perfect ease wherever the old Trumpet flower (*T. radicans*) thrives. North of this it will, perhaps, require a little protection in winter, such as a layer of straw tied over the larger shoots, or some branches of evergreens laid against them at the approach of winter. A northern site will also be found the better one at the north, wherever there is doubt of its hardiness; since the temperature will, in such a site, be more uniform and less injurious than in a southern aspect. Wherever the Isabella grape ripens, this handsome climbing shrub

* *Bignonia radicans*, of LINNÆUS and the older botanists. JUSSIEU has very properly separated the old genus, *Bignonia*, into two; giving the name Tecoma to the two species formerly known as *B. radicans* and *B. grandiflora*.

Fig. 59.—*The Large Flowered Tecoma.*

will be easily cultivated in almost any situation. If there are any fears of its hardiness it may be protected, as we have pointed out, for a couple of years, till the wood gets strong and well hardened.

Any dry, light, well drained soil suits this climber. It should be made moderately rich; and in such soil, when planted against a wall, it will cover a space 12 or 14 feet square in two or three seasons. It is well worthy the attention of those who are looking for climbers of a permanent kind, to cover unsightly walks or close fences, or to render garden buildings of any kind more ornamental, by a rich canopy of foliage and blossoms.

SELECTION OF THE BEST HARDY SHRUBS.

BY AN AMATEUR, NEW-YORK.

I SEND you, for beginners, a selection of choice shrubs, that will grow in almost any good garden soil in the northern states, and require little care. The nursery catalogues contain double the number of species that follow, but there is always a choice; and, as the young planter is often puzzled to choose from mere names, perhaps the following selection, with brief descriptions appended to each, may prove an assistance. It is the result of many years attention to ornamental gardening. I ought, also, to mention that when beautiful effect, alone, is the point aimed at, it is often better to hold on to fine old species of flowering shrubs than to take new ones, that are prized merely on account of their novelty.

What is chiefly wanted in the shrubbery, it appears to me, is either fine foliage, or good habit of growth, or beautiful bloom. Where all these can be found *combined* in one shrub, that shrub may be considered as perfect. But such shrubs are rare; and we must often be content with fine foliage with indifferent flowers, or fine flowers with indifferent foliage. For general effect, perhaps the latter class of shrubs are the most to be prized,—since the flowers last but a short time, while the beauty of the foliage is a source of every day pleasure.

For the sake of convenience, I shall arrange my shrubs in classes according to their height, as follows:—

I. *Shrubs from 2 to 4 feet high.*

MEZEREUM, (*Daphne mezereum.*) Almost the first flowering shrub that blossoms in the spring, (coming out even before the crocus;) its charming little pink blossoms thickly scattered along the branches, render it highly interesting in every garden. There is a white blossomed variety, and also another (*D. m. autumnale,*) which blooms in the autumn.

JAPAN QUINCE, (*Cydonia japonica.*) This is one of the finest of early shrubs. The original species, (commonly known as *Pyrus japonica,*) has a profusion of flowers, of such a brilliant red that it is called "Fairie's fire" in some parts of England. They appear early in April or early in May. The white Japan Quince has, properly, *blush*-coloured flowers, quite like those of the apple tree.

OAK-LEAVED HYDRANGEA, (*Hydrangea quercifolia.*) One of the handsomest of all small shrubs, both in foliage and flower. The blossoms are white, and remain in bloom for two months. The leaves are large, and, in figure, are like those of the oak. This plant is, I think, from Florida; yet it bears a northern winter of 10° below zero without injury. The common greenhouse hydrangea, (*H. hortensia,*) is one of the most magnificent of flowering shrubs, and may be cultivated in the open air about New-York with very slight protection. It is naturally a *swamp* plant; and if planted by the side of a pond, in the shelter of thick evergreens, will stand our winters without any protection, and bloom superbly. In common garden soil, its stems should be thinned out, bent down, and covered with sandy soil at the approach of winter. In this way I have known a single plant to attain a circumference of 20 feet, and produce more than a hundred bunches of blossoms in a season.

JERSEY TEA, (*Ceanothus americanus.*) This

little dwarf native shrub is so pretty and delicate in its white blossoms that it is well worthy of a place in the shrubbery border. Flowers in June.

Persian Lilacs, (*Syringa persica.*) Far more delicate and pretty than the common lilacs, both in leaf and blossom. The bunches of flowers are frequently a foot long, and weigh down the terminal slender shoots so as to give the plant a very graceful appearance. The *white* and the *purple*—both beautiful. The *cut-leaved lilac* has interesting and delicate foliage. May.

Fragrant Clethra, (*Clethra almifolia.*) Numerous spikes of rich spicy-scented, white blossoms, produced in midsummer, give this shrub its principal charm — next to that of being easily cultivated.

Missouri Currant, (*Ribes aureum.*) One of the most popular of sweet scented shrubs. Its golden yellow flowers have a charming fragrance, and it grows freely in every soil.

Crimson Currant, (*Ribes sanguineum.*) With foliage somewhat like that of the black currant, and pretty racemes of large crimson blossoms; this is a very neat spring flowering shrub. Unfortunately, it is not entirely hardy in northern gardens, but requires protection in winter. There is a *double crimson* and a *white* variety— both beautiful. May.

Garland Deutzia, (*Deutzia scabra.*) Unquestionably one of the best of all the new shrubs. Its numerous white flowers are not unlike those of the orange, though the general habit of the plant is that of the syringo, to which it is related. Everybody should cultivate it; and it grows so freely from cuttings that they may easily do so. May and June.

Swamp Buttonwood, (*Cephalanthus occidentalis.*) Though, to our taste, one of the richest native shrubs, this is very seldom seen in our gardens. It is easily transplanted from its native sites, and grows well in the shrubbery. Its foliage is excellent; in form and colour, and its white flowers, agreeable. August.

Double Dwarf Almond. So well known as to need no description, and universally admired. May.

St. Peter's Wreath, (*Spirea hypericifolia.*) This most delicate and pretty wreath-like spirea is one of the hardiest of shrubs; and though its branches are slender, and its foliage too small to produce much effect in the shrubbery, yet its numerous white flowers render it attractive while in bloom. May.

Siberian Pea Tree, (*Carragana chamlagre.*) A shrub with large, yellow, pea-shaped flowers, quite ornamental at the latter end of May or the beginning of June.

Upright or Shrub Honeysuckles, (*Lonicera tartarica.*) There are few shrubs indeed, where foliage, habit, and flower are counted, so entirely satisfactory as these. They grow into neat, close, well shaped bushes, with full foliage, and of a good colour, all through the season. In spring, their neat little blossoms are sprinkled profusely over the whole shrub, and from midsummer to autumn they are ornamented by numerous crimson berries. There are two colours with white and with pink blossoms, both equally pretty and desirable, even in the smallest collection of shrubs. May.

Tree Pæony, (*Pœony moutan.*) Magnificent, truly, in their flowers, are the Chinese tree Pæonias, (often as large as a man's head;) easily cultivated, quite hardy, and among the noblest low shrubs of the whole catalogue. There are now a number of fine sorts,—double white, double rose, &c. &c.; the old double Banksii, perhaps, the finest of all still. Even the *single poppy-flowered* one, (*P. papaveracea,*) is a most interesting and beautiful shrub. A good

warm, deep, sandy loam, suits them best; and while the plants are young, let the earth be hilled up about them at the approach of winter. May is the season of their bloom.

Sweet Scented Shrub, (*Calycanthus floridus.*) Remarkable for its *brown* flowers, (a colour rather rare among flowers,) and for the delicious pine-apple perfume which they give out; a few plants scenting a whole garden. May and June.

II. *Shrubs from 4 to 8 feet high.*

Dwarf Horse-chestnut, (*Pavia macrostachya.*) This is a great favorite of mine. Planted alone, it forms a neat, small, rounded bush, of excellent foliage all the summer; and, in July, its numerous long spikes of white blossoms are truly beautiful. It is not half so much planted as it deserves to be.

Virginia Fringe Tree, (*Chionanthus virginica.*) Among the most refined and attractive of flowering shrubs are the White Fringe trees of Virginia and Carolina, which are quite hardy farther north than New-York. The flowers, which appear early in June, in great profusion all over the branches, look like tissue paper fringe, most exquisitely cut, and contrast, in their snowy whiteness, admirably with the dark green foliage. There are two sorts; the *broad*, and the *narrow-leaved*. I think the latter grows best in our gardens; and its foliage is, also, of a richer and darker green. A little leaf mould or well rotted peat earth, mixed in the soil in which they are planted, improves their growth.

Rose Acacia, (*Robinia hispida.*) An old favorite in our gardens, with rich, fine, deep-pink, locust-like blossoms, appearing in May and June. It is a fine shrub, and deserves well of the ornamental planter.

Syringa, (*Philadelphus.*) All the Syringas are highly ornamental in their thick foliage and abundant white blossoms. There is a variety of the common syringa, with *double*, (really, semi-double,) flowers, rather prettier than the type, and equally sweet. The Carolina syringa, (*P. grandiflorus*,) is the most showy species, with very large flowers, blooming two or three weeks later than the common syringa, and therefore very desirable, though the flowers are not fragrant. The *variegated-leaved* variety is one of the best of all those shrubs with parti-coloured foliage. May and June.

Privet, (*Ligustrum vulgare.*) Common as the privet is, still it is one of the most valuable things for general shrubbery planting. Its white flowers are pretty, and its foliage, which hangs on till December, is thick and of a good colour. It will grow in any situation,—open, or under trees, etc. It will, therefore, be found valuable for thickening-up shrubby plantations, concealing unsightly banks, and many other purposes. No plant is more easily grown from cuttings. July.

Altheas, (*Hybiscus syriacus.*) In midsummer, when most shrubs are done blooming, the altheas are in full beauty; and they then give a gay appearance to pleasure grounds for a long time. The sort with double variegated flowers is, perhaps, the finest, though there are a great number of various shades worthy of cultivation. All seem quite hardy, and grow with great ease in all soils, except the *double white*, which is usually quite tender north of New-York. August and September.

Indigo Shrub, (*Amorpha fruticosa.*) The lively, rich, purple flowers of this plant, relieved by gold coloured stamens, render it quite ornamental in its blooming season. It is rather ugly in its habit of growth, and needs a little pruning and shortening-in at midsummer to correct this. June.

Chinese Purple Magnolia, (*Magnolia*

obovata.) A fine shrub, with large white and purple blossoms. When the plant is a few years old, it maintains a succession of bloom for several months. It needs a sheltered border north of New-York. May to July.

Swamp Magnolia, (*M. glauca.*) A native of New-Jersey, and one of the very finest of shrubs for the garden,—with neat laurel-like leaves, and exquisitely formed and scented white blossoms. Sandy loam, mixed with a little leaf soil from the woods, suits it best; and it accommodates itself to dry soil. July.

Burning Bush, or Spindle Tree, (*Euonymus.*) Excellent shrubs for massing and general planting in the shrubbery. Their flowers are inconspicuous; but their berries are highly ornamental in autumn. The finest species, both in foliage and fruit, is the broad leaved, (*E. latifolius.*) The *white* and *red-berried* have a pretty effect when planted near each other.

Double Sloe, (*Prunus spinosa pleno.*) This is exceedingly pretty, in its numerous small, double white flowers, which appear in May. It is a variety of the English wild plum or sloe.

Early White Viburnum, (*Viburnum lantanoides.*) A native of the Catskill mountains, and a capital hardy shrub. The foliage is large, broad and showy, from the earliest to the latest season; and the clusters of white blossoms are neat in appearance. It makes a fine, large, rounded bush. May.

English Fly Honeysuckle, (*Lonicera xylosteum.*) This is one of the shrub-honeysuckles, and makes a good compact growth. Its pale green foliage contrasts well with those of other shrubs; and its straw-coloured blossoms are pleasing in effect. May and June.

Weeping Cherry, (*Cerasus semperflorens.*) A charming little tree, with leaves like those of a myrtle, and delicate branches, as pendant as those of a weeping willow. It bears flowers or fruit all the summer.

III. *Shrubs from* 8 *to* 12 *feet high.*

Chinese White Magnolia, (*M. conspicua.*) No doubt this must be admitted to be the most superb of all the large shrubs of our gardens. It is perfectly hardy; and a full grown plant will produce thousands of its large, pure white, and fragrant flowers. As it blooms very early in the season, it should be planted near the house, with a few evergreens to back it. April.

Soulange's Magnolia, (*M. soulangiana,*) Flowers larger than the above, opening a week or ten days later, and equally beautiful, though of a pale purple without, and white within. It is also quite hardy; and both sorts should be found in every collection. They grow freely in any good soil, but should be transplanted quite small. May.

Flowering Hawthorns, (*Crategus oxycantha*, var.) I am sorry to see these truly beautiful shrubs so seldom in our gardens and pleasure grounds. Their flowers are exquisitely beautiful; those of the double varieties like *miniature roses*, and their foliage is neat and agreeable to the eye. The *double white* is the greatest favorite; but the *double pink* and *single scarlet* are equally attractive. May.

Double Flowering Cherry, (*Cerasus vulgaris, flore pleno.*) This is the most striking and beautiful of all flowering fruit trees, and deserves a place in every garden. In the shrubbery, it should be worked on the *Mahaleb* stock to dwarf its growth, or root-pruned every year to answer the same end.

The double flowering peach and the double flowering apple, are also highly ornamental for the shrubbery; their flowers as beau-

tiful as those of many roses. All these double-bloomed fruit trees flower in April and May.

Common Dogwood, (*Cornus florida.*) Though this is plentifully seen in our woods, it well deserves to be more frequently introduced into shrubberies. Its flowers and foliage are both excellent; and the effect of its rich, purplish, autumnal leaf-tint, among other shrubs, is very striking in autumn. May.

Snowdrop or Silver Bell Tree, (*Halesia tetraptera.*) A large shrub, highly ornamental when clad, in spring, with its myriads of silvery bells. The finest species is *H. diptera.* It is rather scarce in the nurseries, but has much larger flowers, and of a purer white, than the other. May.

Cornelian Cherry, (*Cornus mascula.*) The bright yellow flowers of this shrub make the garden gay, sometimes as early as March. Its numerous cherry-like fruit, of the colour of cornelian, are also ornamental; and its foliage is thick, and of a good dark geen colour.

Flowering Ash, (*Ornus europeus.*) This small tree bears a great abundance of panicles of charming white flowers, in clusters, at the ends of the branches, like those of the lilac, and is highly ornamental. June.

Scarlet Horse-chestnut, (*Æsculus rubricunda.*) Unquestionably the finest of all horse-chestnuts, and one of the most ornamental of all small trees. The flowers are of a rich crimson, and the plant, when grafted, begins to bloom when only 3 or 4 feet high. There are very fine specimens of this tree in Philadelphia; and I cannot well understand why it has not been propagated and planted more generally. It is very rarely seen in our gardens.

Venetian Fringe Tree, (*Rhus cotinus.*) This popular shrub has a dozen names, one of the most expressive of which, is that of the French—*arbre à perruke*, (wig-tree.) From July to October it is covered with the purplish or brown abortive seed plumes, which render it a highly interesting object in the shrubbery. It is very hardy and grows in all soils.

Laburnums, (*Cytissus laburnum.*) The Laburnum or *Golden chain*, is an old favorite; and its numerous pendant clusters of pea-shaped blossoms make it a very ornamental object in May. *C. alpinus*, the Scotch laburnum, is rather hardier and finer than the common sort. The *oak-leaved* and *purple laburnums* are also both pretty varieties.

Judas Tree, (*Cercis canadensis.*) This is the "red-bud" of the western states; and a very pretty spring flowering tree it is. Shortening-in the ends of its branches ever year, like those of the peach tree, improves its foliage and flowers. May.

Japan Koelreuteria, (*K. japonica.*) This is a striking shrub of thrifty growth and good foliage. Its blossoms are yellow, and are succeeded by inflated pods of singular structure. July. An Amateur.

Uses of the Apple.—In the Transactions of the New-York State Agricultural Society, the Apple Committee speak as follows: "Aside from its edible uses to man, the apple is an important and economical food for most kinds of farm stock. Milch cows thrive upon it, when fed in moderate quantities, and it adds to the quantity and quality of their milk. It is also an excellent food in making beef. Horses eat it readily; for them it is a succulent and healthy food. Sheep, swine, and geese, will fatten altogether on good apples; and for all kinds of poultry they are nutritious food."

AN ESSAY ON THE CULTIVATION OF THE ONION.

BY JOHN W. PROCTOR, DANVERS, MASS.

[We are indebted for the following sensible and practical paper, to a pamphlet published by the Essex Agricultural Society, Mass. Ed.]

The culture of onions has increased so much, within a few years, in this vicinity, that it has become one of the staple products of the county. In the town of Danvers, more money is realized from the sale of the onion, than in any other product of the soil. Products of so much value, and commanding so much attention, are fit subjects of inquiry; and if there be any facts relating to their cultivation not generally known, it may be useful to have them brought forward.

In making these inquiries, our attention has been directed almost entirely to practical cultivators, without reference to scientific treatises. Our intention being to tell their story, as near as possible, in their own way.

We shall treat of the subject in the following order:

1. The preparation of the land.
2. The manure best adapted to promote the growth.
3. The raising and planting of the seed.
4. The care necessary to be applied while growing.
5. The blights and injuries to which the crop may be liable.
6. The time and manner of harvesting.

1. As to the preparation of the land.

Differing from most other crops, the onion grows well on the same land for an indefinite number of years. Instances of continued appropriation of the same pieces of land to the growing of onions, for *ten*, *fifteen*, *twenty*, and even *thirty years*, have come to our knowledge. It is the opinion of many that the crop is better, after the land has been thus used a few years, than at first. Whether this arises from any influence of the crop upon the soil, or is the effect of continued dressing of manures, we have no means of determining. This is certain, that the qualities of the soil necessary for the production of good crops are not exhausted by continued cultivation.

Rarely, if ever, have we known the onion sowed upon the turf when first turned over. It is usual to subdue and pulverize the soil, by the cultivation of corn, or some other crop. Not unfrequently the first year with corn, the second with carrots, and afterwards with onions. It is important, before the seed is sown, that the surface be mellow, finely pulverized, and clear of stones or other impediments, to the free and unobstructed use of the machine for this purpose. The finer and more uniformly mellow the surface is made, the better. Shallow plowing, say from four to six inches deep, is usually practiced. Once plowing only in the spring, and frequent harrowings, are practiced. Before the plowing, the dressing is usually spread upon the surface of the field, so as to be covered or intermixed in the furrow. The mingling and subdivision of it, is effected by the use of the harrow.

Whether it would not be advantageous occasionally, to stir the land to the full depth of the soil, is a point on which there is a difference of opinion; most of the cultivators inclining to the use of shallow plowing only. There are some facts tending to show, that occasional deep stirring of the soil does no harm to the onion crop, but on the contrary is decidedly beneficial. As for instance, onions do better where carrots have grown the year preceding, than after any other crop. The carrot necessarily starts the soil to the depth of ten or twelve inches. Possibly there may be some other influence upon the soil from the plant itself. Our belief is, that the thorough and deep stirring of it, is the principal preparatory benefit.

2. The manure best adapted to promote the growth.

Any strong manure, well rotted and finely

subdivided will answer. But the general impression seems to be, that manure from stables, where the horses are freely fed with grain, is the best; and that it should be at least one year old, because it will not be sufficiently rotten in a less time. All agree that the dressing for the land should be kept near the surface, well mixed, and as fine as possible. Though we have seen the present year a very superior growth of onions, where green manure from the barnyard was applied in the spring; but particular pains were taken to subdivide and intermingle it with the soil; and to bush-harrow the land so thoroughly, that very little manure was exposed upon the surface.

Muscle-bed is frequently used upon onion land. A portion of this is deemed by some almost indispensable. We have known the continued use for half a dozen years in succession, even without other manures, with a continuation of fair crops; but the general impression is, that it will not do to repeat the application of muscle-bed many years in succession. The effect being to harden the land, and make too much of a crust about the surface. Without question, the effect of the muscle-bed is congenial to the growth of the onion, giving those who live in the vicinity of rivers where it is found, a special advantage over those who are remote from it.

Leached ashes are also a valuable manure in the cultivation of the onion; more so when *leached* than before. All kinds of ashes are advantageously applied on onion land.

Compost manure made of meadow mud and droppings from the cattle, we have known advantageously applied on onion fields; but we have many doubts as to this being the best application of this kind of manure. A more lively and quickly operating manure is better for the onion; one that will give them an early start, and advance them as fast as possible, in the first part of the season. The utmost vigilance and activity is used by our cultivators in getting their land ready, at an early period of the season, for the reception of the seed. It is the first field labor of the spring. The use of compost manure will depend much upon the constituents of the soil with which it is mixed. If the soil be a sandy loam, with a porous subsoil, the compost will do tolerably well; but if it be a black soil, with a clayey subsoil, such as are most of the lands where onions are raised in this vicinity, stable manure, or muscle-bed, or leached ashes, or a mixture of these, will be a better application. The quantity ordinarily applied annually is from four to five cords to the acre. Whatever is applied should be generously applied. It will be vain to expect full crops of onions, without full manuring. When the manure is collected, it is benefited much by a free application of *elbow grease* in its preparation. The cultivator of the onion must work early and late, and in good earnest. Nothing short of forcible and persevering labor will answer. No man who is afraid of *soiling his hands or the knees of his trowsers* will do to engage in this business. Close work at the proper time, is the only sure guaranty of a good crop.

3. The raising and planting of the seed.

In relation to the onion, as well as all other vegetables, much care is necessary in the selection of the plants for seed, and the cultivation of the seed. By the application of this care, the character of the article raised may be modified almost at pleasure. Until within a few years the *flat onion*, hollow about the stem, has been preferred. The thinner the handsomer. But it is now understood, that the *round, thick, plump onion*, is preferable in many respects. It is thought to yield better, and weigh heavier. It is found to have a decided preference in the market, commanding *ten per cent* more in price. By selecting those of most desirable form, which ripen the earliest, and carefully setting them for seed, where they will not be exposed to the impregnation of the baser sorts, the quality has been materially changed and improved. These peculiarities in the onion were first noticed in this vicinity by Mr. Daniel Buxton. He was careful to select in the field before the crop was gathered, such onions as he preferred, and to preserve them for seed.

By so doing, the seed which he raised soon acquired a character superior to any other. Many of those who had been accustomed to raise their own seed in the ordi-

nary way, laid it aside, and purchased seed raised by Mr. Buxton, and found their account in so doing. There are three varieties of the onion raised in this vicinity—the *Silver-skin*, the *Red*, and the *White* onion. The *Silver-skin* is the predominant species, and more cultivated than all others. The *Red* is preferred by some—sells better in some foreign markets, but does not yield so abundantly. The *White onion* yields as well as either of the others, is milder and preferable for immediate use; it will not keep as well, and is not fit for exportation; which is the principal use made of our onions.

The common drill machine is used for the distribution of the seed. This admits of regulation, so as to scatter it more or less thick; and in this there is room for the application of sound judgment. The usual quantity sown is about three pounds to an acre. As a general rule, we should say, one pound of good seed was the proper quantity for a quarter of an acre of land of good quality well prepared. It is desirable to have the seed planted as thick as they will grow fairly, both to secure a full crop, and prevent the onion growing too large. Onions from one to two inches in diameter being preferred to those of a larger size. The skilful cultivator carefully looks after all these incidents relating to his crop.

4. The care necessary to be applied while growing.

Much of the success of the crop depends on this care. At first the plant is extremely tender, and requires to be handled with much caution. Any derangement of the fibres or roots of the young plant, is attended with prejudicial consequences. Much attention is necessary to prevent weeds gaining the ascendancy; and in eradicating the weeds. Want of due care in this is often the cause of failure of a crop. We have known the present season, a highly promising crop to be injured *twenty per cent.* at least, by permitting the weeds to remain unnoticed *one week too long.* This is especially true when there has been a want of due care in preventing the scattering of the seeds of the weeds on the land in the years preceding. Care should be taken, both that no weeds shall ripen their seed upon the land, and that no weed seed shall be found in the manure. In this respect, warm stable manure, muscle bed, and ashes, have a decided superiority over all other manures. Perhaps there is no plant more liable to be injured by weeds than the onion. The fibres it sends out are very numerous, minute and tender: any fracture of any of these, necessarily impairs the perfection of the plant. When the land is in the proper condition, two careful weedings are all that may be necessary. The rest of the stirring of the ground that may be required to promote the growth, can be done with the *Onion Hoe*, (Fig. 60,) an instrument specially constructed for the purpose, moving on wheels, and adapted to the width of the rows. It is calculated to pass between the rows of onions—being either drawn or pushed. The wheels cover a space of about one foot in width, and the length of the cutting blade is also about a foot. The length of the handle is about five and a half feet. The usual distance between the rows is fourteen inches, and as the hoe takes a breadth of twelve inches, it cuts over all the ground, excepting a strip of two inches along each row. The cost of the hoe varies from $1.25 to $1.50. It was invented by Mr. Joseph Bushby, of Danvers, an intelligent and successful cultivator of garden vegetables, about 25 years since; and was used by himself and neighbors only for about ten years. It has now come into general use, and saves much of *back-aching labor.* The distance between the rows can be varied according to the quality and condition of the soil. Keeping the ground well stirred, loose, and free of weeds, greatly facilitates the bottoming of the onion. There is no plant that will better reward dilligent care in the cultivation.

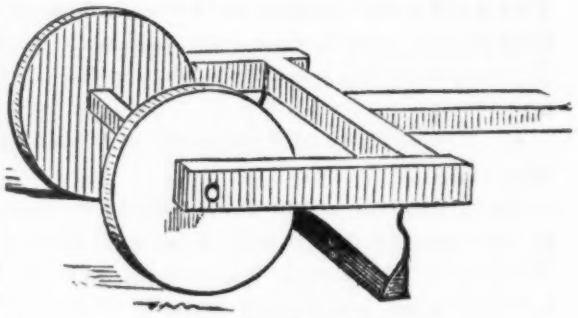

Fig. 60.—*Onion Hoe.*

The entire difference between a bountiful crop and no crop at all, often depends on this. The old maxim "a stitch in time saves nine," applies with great force in raising onions.

5. The blights and injuries to which the crop may be subject.

So far as we have observed, this crop is as certain as any other that is cultivated. We know that onions will not grow without a reasonable proportion of heat and moisture; but we have rarely, if ever known, an entire failure of the crop, where due diligence has been used. There are occasionally blights, the causes of which we have not learned. The more prominent will be noticed.

Sometimes we have seen the plant covered with a small insect or *louse*, that gives the top a white or light colored aspect, and stops and stints the growth. These make their appearance about the time the bottoming commences. We have heard their appearance charged to the use of muscle-bed; but whether they are limited to land on which muscle-bed has been used, we cannot say. We think not. We think they are natural associates of the plant. The effect of them is to diminish the *quantity*, but not materially injure the *quality* of the vegetable.

The crop is sometimes injured by a *blue mould* that gathers on the tops, occasioned by fogs, or an excess of moisture from frequent and long continued rains.

There is a *worm* or *maggot*, occasionally found upon the onion plant, in the early stages of its growth, causing it to turn *yellow* and die. This insect will be found in the bulb, originating from eggs laid upon the leaves, by a small ash colored fly, the scientific name of which is said to be *Anthomyia ceparum*, (See Transactions of the N. Y. State Ag. Society for 1843, page 135.) It comes to maturity in less than a month, so that there may be several generations in the course of the season. Their appearance in this vicinity is rare. Pulverized charcoal and fire have been found the most effectual remedies, against the ravages of this class of depredators.

REVIEW.

THE CINCINNATI STRAWBERRY REPORT.—This is a pamphlet of 16 pages; being the report made by the committee of the Cincinnati Horticultural Society, mostly practical cultivators, (Dr. WARDER, *chairman*,) to whom the sexual character of the strawberry was referred for investigation last season.

THE *pith* of the report is contained in the following extract:

"After carefully collecting and reviewing the facts which they have observed and recorded, the committee present the following *conclusions*, or *postulates*, which have been deduced from their united observations:—

"1. That there are many different varieties of the strawberry which are characterized in part by the foliage, pubescence, mode of growth, and fruit; and also by their *inflorescence*.

"2. That the varieties of inflorescence, (the most important to the cultivator,) consist in the greater or less development of the stamens and pistils, respectively; upon which are based our terms and classification—'*staminate*' and '*pistillate*:' or, more familiarly with the mass of cultivators, *male* and *female*.

"3. That these classes are *permanent* aberrations from what the great Linnæus considered the normal condition of this genus of plants, as of its natural family ROSACEÆ.

"4. That nearly all botanists (and among them our most enlightened modern writers,) have overlooked the important error of Linnæus, and have simply copied after him in their descriptions of the strawberry, without verifying for themselves; while a plain,

unlettered market gardener, but a practical observing man, discovered* the important fact, that, while in some plants the flowers are apparently perfect in both sets of organs, one set is really defective, to a greater or less extent; and in others, the flowers which we style *pistillate*, have the stamens so imperfectly developed as entirely to elude a casual observation, and only to be discovered to a critical observer; and then, in most instances, found to be wholly abortive.

"5. That no *pistillate* plant will bear a perfect fruit if kept entirely apart from staminate varieties.

"6. That no *staminate* plants, which we have yet seen, can be depended upon by the cultivator as heavy bearers; though, from some unknown causes, the pistils may be so well developed as to be followed by a good crop, in some years, and in some situations.

"7. That there is no such thing known to us as a perfect flowered strawberry plant, in which the blossoms will *all* be *uniformly* so well provided with both sets of organs as to be followed by *perfect* fruit every year.

"8. That the only method of producing this delicious fruit, with any degree of certainty as to the result, is that now adopted by our intelligent cultivators, namely,—to set out plants of both the sexual classes; the relative proportions of which to be determined by experience, selecting such pistillate kinds as may prove of good size and flavor, and only so many *staminates* as may be necessary for impregnation.

"9. That the runners from a strawberry plant are as integral portions of itself, as the branches and buds of a tree; and therefore we may always propagate any variety by this means, with as much certainty as we perpetuate any variety of apple or other fruit by grafting or inoculating."

The foregoing, we say, is the *pith* of the report, and is already familiar to the country at large, both by the numerous articles published on the subject by Mr. LONGWORTH, and others, and still more by the now widely extended reputation of the most abundant and excellent crops of strawberries, with which the Cincinnati market is annually supplied, by following this course of culture.

We have already stated in this journal, that whatever may have been our doubts, originally, as to the practical results of the Cincinnati mode, that is, in planting mainly *pistillate* sorts, with only about a fourth *staminates* to fertilize them, we have, after a fair trial, no longer any doubts upon the subject.

It is, we believe, *in this climate*, the only mode *which can be depended on* for obtaining every season a heavy crop of the large-fruited strawberries. We have, therefore, recommended it repeatedly of late in this journal, and have just re-written that portion of the eighth edition of our work on *Fruits*, in which a contrary ground was taken; adding, also, to the description of the varieties in that work the characters—*pistillate*, or *staminate*,—to designate their habits to the cultivator.

We say, *in this climate;* for it should be added, that though the Cincinnati mode repudiates many of the large pine strawberries, such as *Keen's Seedling*, as plants not to be relied upon for regular crops, yet they very wisely add—"*that from some unknown causes, the pistils may be so well developed as to give a good crop, some years, and in some situations.*"

Now this is perfectly true; and it also explains what seems to be the stumbling

* We say *discovered*, because we are unable to learn that Mr. ARBIGUST ever heard of Mr. KEESE, or Mr. DUCHESNE, or that he was at all in the way of reading anything upon the subject.

block in the way of the Cincinnati committee; we mean the marvel, why great authorities and botanists abroad have been so slow to discover, or practice upon the value of the abnormal sexual character of many varieties of this plant. Granting that a variety once *pistillate* is always pistillate, and one *staminate* always staminate, it does not follow that somewhere, many, or perhaps all good staminate varieties, for "some unknown causes," do not bear good crops. These unknown causes we take to be *suitable soil and climate for the development of the pistils* in the *staminate* sorts. In England, the damp climate and high culture favor this development; consequently, such a strawberry as *Keen's Seedling* maintains its place as the first variety for a good crop all over Great Britain for 20 years. (That it certainly would not do this if it did not bear well, *practical men* will admit without dispute.) In this country, the hot and dry climate renders *Keen's Seedling*, and most other *staminate* sorts, uncertain bearers, and thence often quite worthless, because the pistils are usually not well developed.

But there are soils and situations in the United States so favorable that staminate sorts do bear very heavy crops. Thus, we have once seen a heavier crop of large fruit on *Swainstone's Seedling*, (*staminate*,) than ever upon Hovey's Seedling, (*pistillate*;) and several cultivators in this state have been equally successful with *Ross' Phœnix*.

The difficulty is that the staminates "*cannot be* depended on." Sometimes they bear well—sometimes not; as the season proves hot or cool, and the soil is more or less well adapted. In England, we think they can be relied on. Hence the necessity, *here*, of the resort to the Cincinnati mode of depending upon the *pistillates*, (such as Hudson, Hovey's Seedling, &c.,) which, when fertilized by a small proportion of *staminates*, always bear heavy crops; and hence the great value, for America, of the Cincinnati discovery.

We are, therefore, very glad to see the whole matter put in so intelligible and definite a shape as it has been by this committee, in the 9 *articles of faith* which we have just quoted.

There are two or three points of little consequence that we will notice in the report. In article 7, the committee say there is no "*perfect flowered* strawberry plant." In order to leave no doubt, however, what is meant by this hated word (we can scarcely write it without imagining a frown on Mr. LONGWORTH's brow!) they add—"in which the blossoms will *all* be *uniformly* so well provided with both sets of organs as to be followed by *perfect* fruit every year."

Quite right; we agree fully with the committee. But is this the definition of a *perfect* (that is, an ordinary fruitful hermaphrodite) flower, as would be understood generally by botanists and gardeners? The apple, for instance, is a *Rosaceous* plant, belongs to the same family, and the blossom has the same natural structure as the strawberry. Now we think no one will deny that the apple bears a *perfect* flower, although, from various causes, all the blossoms may not set perfect fruit every year.

Again, leaving the acknowledged *staminates* and *pistillates* out of the question, there is still a small class of strawberries, well known in our gardens as the "*Wood Strawberries*" of Europe (*English Red-wood*, *White-wood*, &c.,) with small leaves, and small erect blossoms, which have, in the general sense, *perfect* flowers; that is, with the normal proportion of stamens and pistils, constant in their habit, (like those of the apple and pear,) and which always, in

good soil, with ordinary culture, produce good crops of fruit.

These strawberries, from their comparatively small size, do not usually enter into competition with the larger Pine strawberries; but we believe there is a practical cultivator in our neighborhood who will undertake to grow from a bed of them, of a given size, *as many quarts* in a season as any grower in Cincinnati can do with the best pistillate variety. They are evidently little grown in Cincinnati, as we find them scarcely mentioned in this report. Although they are certainly not *perfect flowered* sorts, in the sense defined by the committee, (has any *Rosaceous* plant such flowers?) yet we think they might have been ranked as such.

For ourselves, we place these sorts below the *pistillates* for heavy crops and fine large fruit; but from their permanent character, easy culture, and long succession of fruit, they are largely esteemed in this part of the country.

The *La Grange* (or Lafayette,) strawberry, noticed in this report, is, as we have proved, synonymous with the *Prolific*, or *Musk Hautbois*, as the committee suggest.

The "Hudson" strawberry, as noticed in this report, and as generally known at Cincinnati, is, we imagine, not the genuine Hudson, so long known in the Philadelphia and New-York markets. We suspected this from the exception which Mr. LONGWORTH made to our description of this variety; but the fact that it is in this report compared in *colour* to *Willey* and *Hovey's Seedling*, and that we have fruited the Willey from Cincinnati, which is widely different from the true Hudson, (though, as we learn from Cincinnati growers, not readily distinguished from their "Hudson" there;) all this leads us to suppose that the true Hudson is not cultivated about that city. Ours is the true "Hudson's Bay," accurately described and figured in the *London Hort. Transactions*, vol. vi., p. 159; in *Lindley's Guide to the Orchard*, *Prince's Pomological Manual*, and our *Fruits and Fruit Trees;* very dark colour, firm flesh and acid flavor, *with a neck.*

Mr. ERNST has just sent us plants of the Hudson of Cincinnati, and we shall, therefore, soon be able to compare this with the sort known by that name east of the Alleghanies.

FOREIGN NOTICES.

PULQUE—THE MEXICAN DRINK.—[We extract the following account of the manufacture of the favorite Mexican drink, from Buxton's Adventures in Mexico and the Rocky Mountains, lately published in London.

The American Aloe, (*Agave Americana*) from from which it is made, is the "century plant" so well known in all our green-houses.—ED.]

"In the city of Mexico alone, the consumption of *pulque* amounts to the enormous quantity of 11 millions of gallons per annum, and a considerable revenue from its sale is derived by government. The plant attains maturity in a period varying from 8 to 14 years, when it flowers; and it is during the stage of inflorescence only that the saccharine juice is extracted. The central stem, which encloses the incipient flower, is then cut off near the bottom, and a cavity or basin is discovered, over which the surrounding leaves are drawn close and tied. Into this reservoir the juice distils, which otherwise would have risen to nourish and support the flower. It is removed three or four times during twenty-four hours, yielding a quantity of liquor varying from a quart to one-half gallon. The juice is extracted by means of a syphon made of a species of gourd called *acojote*, one end of which is placed in the liquor, the other in the mouth of a person, who, by suction, draws up the fluid into the pipe, and it is deposited in the bowls he has with him for that purpose. It is then placed in earthen jars, and a little old pulque—*madre de pulque*—is added, when it soon ferments, and is immediately ready for use. The fermentation occupies two or three days, and when it ceases, the pulque is in fine order. Old pulque has a slightly unpleasant odor, which heathens have likened to the smell of putrid meat; but when fresh, is brisk and sparkling, and the most cooling, refreshing, and delicious drink ever was invented for thirsty mortal: and when gliding down the dust-dried throat of a way-worn traveller, who feels the

grateful liquor distilling through his veins, is indeed the "*licor divino*," which Mexicans assert is preferred by the angels in heaven to ruby wine."

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GREAT MEXICAN CYPRESS TREES.—Far more interesting than the apocryphal tradition of the Indian palace, or the viceroy's castle, is the magnificent grove of cypress (deciduous cypress, *Taxidium distichum*) which outlives all the puny structures of man, and, still (1846) in the prime of strength and beauty, looks with contempt on the ruined structures of generation after generation which have passed away. One of these noble trees is upwards of seventeen yards, or 50 odd feet, in girth, and is the most picturesque, and at the same time, nobly proportioned tree, it is possible to conceive. It rises into the sky, a perfect pyramid of foliage, and from its sweeping branches hang pendulous, graceful festoons of a mossy parasite. There are many others of equal height among the Chepultepec grove, but this one, which I believe is called Montezuma's cypress, stands more isolated, and is therefore more conspicuously grand. From the summit of the hill, to which a path winds through a labyrinth of shrubs. a fine view of the valley and city of Mexico is obtained, and of the surrounding mountains and volcanic peaks. *Buxton's Mexico.*

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TO PROMOTE THE GROWTH OF TREES.—Whatever mode of planting trees may have been adopted, the following means will greatly promote their growth.

Scrub the bark of the trunk and principal branches with a wet brush, (dipped in soap suds,) until there remains neither moss nor dead bark. Repeat this operation several times in a season, but especially in the months of April and November. In this way the perspiration of the tree is aided, and the bark is everywhere put in the best condition to absorb moisture, and the whole tree becomes more susceptible to the beneficial influences of the atmosphere.

It is especially fruit trees that this cleaning will most benefit.

As trees absorb the humidity of the air by all parts of their surface, it is particularly in a hot and dry season that this process is recommended, as it then puts them in a state to profit by the least rain, or even by the dew. Insects which are especially fond of trees whose bark is rough and diseased, are much less likely to attack those which have been freed from all dead and useless parts. When therefore the brush is not sufficient to completely render the bark smooth, it should first be carefully scraped with a knife, and afterwards well washed and scoured with the brush.

To be convinced of the utility of this mode of treatment, it is only necessary to compare the rapid growth of a tree so treated, with its neighbors left to nature. *Pfaelzische (German) Gartenzeitung.*

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TO RESTORE SICKLY OR JAUNDICED AZALEAS AND OTHER PLANTS.—The following further application of M. GRIS' important discovery in restoring the health of plants with yellow and sickly foliage, noticed at length in our last, is well worthy of attention. Lemon and Cape Jasmine plants, as well as sickly fruit trees, may be restored in the same manner.—ED.]

In the *Revue Horticole* of the 15th of October, is an excellent article on the culture of Azaleas, over the well known signature of M. VAN HOUTTE. Will you allow me to submit to your readers some observations on this subject?

M. VAN HOUTTE recommends, for Azaleas suffering from *chlorosis*, (yellow sickly state of foliage,) and in a languid state, the same treatment employed by all practitioners, namely, repotting, sheltered and shaded position, under a frame, &c., &c.

During the vacation, I was at Chatillon-sur-Seine: M. LECLERC, post-master and member of the committee of agriculture, begged me to submit *to a regimen of iron*, seven or eight Azaleas, which, in spite of the treatment recommended above, had been for two or three months, in a decidedly jaundiced and suffering state. Two or three of them were dying. On the first of September, at a temperature of 20°, the plants in question were immersed, leaves and branches, in a solution of *sulphate of iron*. (common copperas,) half a dram to a quart of water, or 1oz. to fifteen gallons, and withdrawn after several seconds, being entirely and uniformly wet. Eight days after a decided amelioration was perceptible. The operation was then repeated, a small quantity of a stronger solution of iron being spread on the earth in the pots.

Under the influence of this double absorption, external and internal, the Azaleas, after fifteen or twenty days, would not have been recognized for the same plants; not only had they regained their green and healthy appearance, but at the extremities of several branches, young green leaves were observed, with all the signs of a vigorous growth.

The same experience occurred at the same time and place, with equal success, on some Calceolarias, which had been in an equally sickly, pale and dying condition.

I doubt if any other method would give as rapid and perceptible results, obtained with so litte trouble and expense. This *medical practice* is so simple that the most humble gardener's apprentice could easily become enough of a doctor, to apply it. It is merely necessary to keep strictly to the doses indicated; to use the solution of iron immediately after the copperas has dissolved, that is to say, before it is affected by a deposit of rust, and to operate with the temperature sufficiently high. Below 12° or 14°, (60° or 65° Fahrenheit,) the effects are much less sensible. sometimes not perceptible. They would be still more remarkable and immediate, if the temperature were still higher. If the sun, however, should be very hot it would be advisable to try the experiment a little in the shade.

Finally, these experiments with sulphate of iron, which have occupied me since 1840, have been pursued for three years at the Museum of Natural History, in Paris, under the benevolent auspices of the professors of botany and culture. This new treatment has been applied to a number of individual plants belonging to the most different natural families, some in the open air, some in the orangery, some in the hot-house;—and the results obtained daily, leave no doubt of the specific action of *salt*

of iron on jaundiced vegetation, (chlorose vegetale.) Eusebe Gris, *Revue Horticole.*

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Pears on Quince Stocks.—I must refer your correspondent "Abdalonymus" to my reply to "Constant Reader," given at p. 372, 1847; he will there find the results of my experience, which will spare my pen, but I feel that I ought to firmly contradict his assertion—"It is a fact that few sorts of pears will grow immediately on quince stocks." I can give him a list of more than 200 sorts that grow freely without double working. The Virgoleuse Pear is very inferior to other sorts, the names of which I have given in the letter above referred to for double working; for walls or espaliers they are not "useless;" let "Abdalonymus" go to Mr. Thompson at the Chiswick Gardens, and ask him to show him the fine trees in the west wall there, some 25 years old, and looking as if they would live for a century. Some of our finest old varieties of pear, such as the Crassane and Colmar, most certainly require a wall to bring them to perfection, as is also the case in the northern departments of France and in Belgium; but our best new varieties give the very finest fruit from pyramidal trees on the quince stock.

It is not a fact "that pears are far more liable to canker upon quince stocks than upon their own;" quite the contrary, as I can prove to "Abdalonymous" if he will come and see me. Very many sorts that canker and are unfruitful here, when grafted on the pear stock are fruitful and healthy in the highest degree when worked on the quince. I will here venture to repeat what I have before written in your pages, that the "Louise Bonne, of Jersey," grafted on the pear here, and growing in a light sandy loam, seldom or never bears clean fruit; they are always spotted and diseased, and its shoots are often cankered and unhealthy. I have this month taken off the heads, for the purpose of regrafting some fine trees 15 years old, on this account, and have just finished a plantation of 2000 trees of this sort on the quince to grow fruit for Covent Garden market, only because it does so well. Your correspondent does not give any account of his experience; his letter seems to me all empty assertion.

Pears upon quince stocks do not "require several years before they come into a bearing state;" they often bear the second year from the bud or graft, and the third year they will bear abundantly. I am not at all surprised at your correspondent being "completely" baffled; he has not persevered as I have. The fruit from pyramidal trees on the quince occasionally root-pruned is not "small and deficient in juice;" the finest flavored pears I have ever tasted in this country and in France have been the produce of trees of this description; there is always much more piquancy of flavor than in pears from walls. I can state rather a stubborn fact in support of this; I sent last October some sieves of Louise Bonne of Jersey to Covent Garden market. My salesman reported to me that "they were the best he had ever seen or tasted."

Now, as to duration, "to die in a few years" will not be the fate of trees worked on the quince; witness the healthy trees in the gardens of the Horticultural Society at Chiswick, which are now more than 20 years old. I have seen trees on the continent more than 40 years old equally healthy. Surely this is enough of duration for any garden trees, and for any man of moderate wishes.

I half suspect that I know "Abdalonymus," and that some years since he was an unsuccessful cultivator of the pear on quince stocks, owing to his employing the common pear-shaped quince, raised from layers, which is a most unfit stock. He does not perhaps know that there are four or five varieties of the quince, and that he used the very worst sort for a stock. He sold his trees, and I should think suffered in reputation. This, I fear, has made him crotchety and envious. I regret to observe this, and shall feel much pleasure in pointing out to him the different varieties of the quince, and in particular that which is most favorable to the pear. By the way, an error that the Portugal quince is alone the proper stock for the pear has been extensively propagated; this, I think, has its origin in the assertion of Comte Lelieur, in his "Pomone Francaise;" he there mentions it as being the best stock, but in describing it he gives the description of the Angers quince, a variety with small and pointed leaves, which strikes readily from cuttings. The true Portugal quince has broad downy leaves, and does not strike freely from cuttings; neither does the pear succeed well grafted upon it; it is rarely seen in the French nurseries, and never employed as a stock.

I have above spoken of the freedom from canker of many sorts of pears when grafted on the quince. So much is this the case, that only the other day, when looking over some very healthy free-growing root-pruned trees, I was almost vain enough to think that I had discovered both the carse and the remedy for that perplexing disease. On one side were some pear trees (not root-pruned) grafted on their own stocks, which after having grown freely for several years had commenced to canker; the disease indeed seemed to be making rapid progress. On the other side were some root-pruned pear trees, of the same age, on quince stocks, full of bloom buds and health; not a spot or speck of canker to be seen on them. One of my laborers was present; I bid him dig around the first named pear trees, so that I could see their roots. I found them all making their way almost perpendicularly downwards, through a sandy loam into a calcareous sand, and in some places into a stiff, reddish, tender clay. They were evidently getting out of the influence of the sun and air; the consequence is disease in the branches.

I turned to my root-pruned trees on the quince stocks, uncovered their roots, and closely examined them. Every root and fibre was near the surface, ready to receive the benefits of surface dressings in winter, liquid manure in summer, and the influences of sun and air. The consequence is health and fertility. These are, I trust, facts worthy the consideration of the physiologist.

A few words more about pyramidal pear trees on the quince stock and I have done. In the "good old times" it was customary in planting common gardens to stick in dwarf trees here and there, either Willow-like one year old grafts or bushy trees

two or three years cut in; if vigorous growing sorts these soon grew into large spreading trees, shading a large space of ground. If, on the contrary, they were delicate and rather tender, their shoots in a few years commenced to canker, and presently the trees would be a mass of disease. Now pyramidal pear trees on the quince stock, and apples on the paradise stock, must not be stuck in in this manner; they should be planted—and planted well, and have summer pinching and winter root-pruning if inclined to grow too vigorously; surface dressing in autumn and liquid manure in summer will also be found highly advantageous. In short, they require culture; in deep, rich, fertile soils, this surface dressing and liquid manuring may be dispensed with, but in thin, dry and light soils it is quite indispensable, more particularly in thin soils resting on chalk; in such soils, even with the best culture, success will not always attend the efforts of the cultivator; but I must honestly confess that I have not yet seen any failure. The following sorts of pears, I am inclined to think, will succeed on the quince, even on the most unfavorable soils; they are planted here in stiff, dark, adhesive clays—in light, calcareous, reddish sand—in sandy loam, and in a stiff, red loam (such is the great variety of soils in my nursery,) in all they succeed admirably, and give abundance of fruit of large size and fine flavor: Beurré Ananas, Beurré d'Amanlis, Beurré d'Aremberg and its congener Soldat Laboureur or Orpheline d'Enghien, Beurré Capiaumont, Beurré Diel, Beurré Easter, Beurré Langelier, Bon Chretien (William's,) Chaumontelle, Citron des Carmes, Colmar, Crassane, Delice de Hardenpont, Doyenné d'eté, Doyenné (white,) Duchesse d'Angouleme, Fortunée (Parmentier,) Glout Morceau, Gratioli of Jersey, Louise Bonne of Jersey, Napoleon, Passe Colmar, Saint Germain, Van Mons Leon le Clerc, Vicar of Winkfield, Wilhelmine, &c.

I must confess that I take great pleasure in the culture of pyramidal trees—they are so productive, so "gardenesque," so come-at-able, their fruit is so easily gathered, the progress of the trees in all their stages of growth is so under the eye of the cultivator that I feel assured it must make rapid progress, in spite of such cavillers as "Abdalonymus" and "Constant Reader."—*Thomas Rivers.* [Mr. Rivers is perfectly right. Ed.] *Gard. Chronicle.*

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It is a well-known fact that the Diseases of Plants, like those of animals, are occasionally epidemic, prevailing over the vegetation of large districts; and the question has often been asked—Are they *contagious* or *infectious?*—Are they propagated by matter engendered in one individual and communicated to another? We shall endeavor to answer these questions; and we think that the conclusion must be arrived at, from the evidence before us, that the diseases of plants may be, like those of animals, produced by contagion.

Amongst animals, diseases are engendered by the application of organic matter in three forms: 1st, that of animals, as in the case of the itch-mite, rot-worm, and the various forms of epizoa and entozoa; 2d, that of vegetables, as in the fungi of scald-head, the confervæ of impetigo, and other cutaneous diseases; 3d, that of organic cells, which do not give evidences of the possession of a specific animal or vegetable life, as in the case of small-pox, measles, scarlet fever, typhus fever, &c.; and it is these diseases which are most frequently epidemic.

The same agents are capable of producing diseases in vegetables. The attacks of the aphis, the scolytus, and other insects, are well known as producing extensive destruction of herbs and trees over large districts; and the most frequent pestilences that desolate the cultivated plants of our fields are produced by various forms of fungi. The agency of fungi is so great in producing blights, that some writers have been inclined to attribute all the diseases of the vegetable kingdom, not produced by insects, to this cause; and the peculiar characters which the cells of plants assume under disease have been named as though they were so many species of fungi. We are indebted to Unger, a German botanist, for having pointed out this error, and the real source of the supposed forms of fungi. There is not, however, any doubt that the greater number of the most destructive pests of our fields—as those known by the names of smut, brand, mildew, rust, &c.—are produced by the introduction of the seeds of fungi into the tissues of the affected plants. With the history and nature of these, we are happy to say we shall be able to make the readers of the *Gardeners' Chronicle* acquainted, through the able pen of the Rev. Mr. Berkley.

These cryptogamic diseases of plants must be regarded as contagious, since they are produced by the contact of one portion of organic matter with another. But the diseased cells of a vegetable are capable of communicating their diseased action to healthy cells, just as the cells from an animal affected with small-pox are capable of giving that disease to another. If a healthy plant of Cactus be inoculated with some of the fluid from a plant affected with *moist gangrene*, diseased action will immediately commence, and extend more or less rapidly according to the condition of the plant thus inoculated; and this is the case with some other forms of vegetable disease. The kind of action thus established is analogous to that which occurs when a small quantity of ferment is introduced into a saccharine fluid, the consequence being the impartation of a new character to the particles of the fluid, and an entire change in the relation of its chemical constituents. In order that diseases may be thus produced, it is not necessary that the contagious matter be conveyed from one plant to another in a tangible form, but the diseased cells may be conveyed through the medium of the air, in the same way as the sporules of fungi which produce blights.

In treating of contagious diseases or those produced by animals and plants, most writers have paid almost exclusive attention to the agent producing the disease, not taking into consideration the condition of the plant attacked. In human beings it is well known that only a small proportion of persons exposed to the influence of contagion will take the disease that it is calculated to produce. There is, in fact, in both animals and plants a condition of the tissues of the individual, brought on by circumstances, which favors the production of disease, and it is alone in our power over this condi-

tion that we can expect to control the visitation and destruction of epidemic diseases. That such a condition of plants exists is, we think, proved by the fact that epidemic diseases arising from the attacks of insects and fungi do not occur in the same districts in following years, although there can be no doubt that there are more of the seeds of disease, as the ova of insects, the seeds of fungi, &c., in the vicinity of crops, in the year following an attack of the disease, than in years either previous or subsequent to the attack. We think, then, that there is reason to conclude that there are constantly in the atmosphere germs which are capable of producing disease in a plant, provided the plant gets into a condition to be attacked.

The circumstances that would produce such a condition of a plant as to render it liable to the development of epidemic diseases, are of a general nature. The state of the atmosphere in relation to moisture, the prevalence of unseasonable, hot or cold weather, the amount of light, and probably the electrical condition of the air and earth, are the circumstances which act on plants generally, and which may produce a state in which insects, fungi, or organic germs, may generate disease.

A more limited cause of predisposition to contatious disease is the natural decay of a plant or parts of a plant. Thus we find that the leaves are more exposed to the attacks of fungi just before the fall than at any other time. The trunk and branches of a tree become most frequently gangrenous when they have attained maturity. Soft fruits—as apples, pears, oranges, melons, grapes, &c., are more exposed to the attacks of disease the riper they get. Ripe fruit is already entering into a state of decay, and this process is hastened by the introduction of the seeds of fungi or the cells of diseased tissue.

Can the epidemic diseases of plants be averted? We think in some cases they may, and in others very much mitigated. We cannot control the sun and the wind, nor prevent electrical accumulations and escapes; but we may act in anticipation of their influence, and, if we cannot altogether prevent the occurrence of epidemic diseases among plants, we may do much to prevent their destructive consequences. Plants which have the most perfect health will always withstand depressing or exciting influences best, and the most carefully cultivated farms and gardens will always be those which, in the long run, will suffer least from blights of any kind. It is not our object here to point out the means of keeping plants in a healthy state; but we would say to farmers and gardeners—take all care that your plants are healthy; be careful of stimulating them with heat, light, water, or manures; be equally careful of depriving them of a sufficient quantity of these things; and guard against poisoning them by noxious gases or improper manures. The influence of particular varieties of plants, and the age of them, in producing disease, we shall discuss in a separate article. *L. E. Gard. Chronicle.*

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Burnt Clay a Good Manure.—It has been the custom here for some years, in spring, when the operations of pruning, &c., are ended, instead of suffering the rough branches to lie about, presenting an untidy appearance, to collect them in a heap, and build a wall of turf round them in a semicircular form about three feet high. They are then set fire to, and when about half burnt down, such weeds and other rubbish as collect in every garden, and will not readily decompose, are thrown on the top, and earth is gradually cast up as the fire breaks through.

During the first two or three days no ordinary care is requisite to keep the pile on fire; but after this, if the fire is not allowed to break through and thus expend itself, it will certainly spread through the whole heap, and almost any amount of soil may be burnt by still adding to the top. The soil we burn is the stiffest loam that can be found within our limits, and is rather of a clayey nature; also turf from the sides of ditches and ponds, in itself naturally sour and full of rank weeds.

The clay thus burnt has been found beneficial in every instance. In black garden mould, where peach trees were disposed to sucker and canker, despite of animal manures and drainage, two or three annual dressings of burnt earth appear so to have altered the soil that they now grow clean, vigorous and healthy, are free from suckers, and produce roots completely matted with fibre. The like success has attended its application to other fruit trees.

During the summer of 1842, six beds of tea-scented roses growing in an alluvial loam (the adjacent fields are of the same soil, and grow large crops of wheat and potatoes, but the particles of soil run together after rain, and present a smooth cemented surface) were manured with the following substances, viz.—1, bone-dust; 2, burnt earth; 3, nitrate of soda; 4, guano; 5, pigeon dung; and 6, decomposed stable manure. The guano produced the earliest visible effects, causing a vigorous growth, which continued through the season; the flowers, however, were not so abundant, and the shoots did not ripen well, and were consequently much cut with the frost. The bed manured with burnt earth next forced itself into notice; the plants kept up a steadier rate of growth, producing abundance of clean, well formed blossoms; the wood ripened well, and sustained no injury during winter. The results of the other manures were not remarkable—acting as gentle stimulants, the nitrate of soda and bone-dust least visibly so—although they were applied in the quantities usually recommended by the venders.

From the fact of the beds of roses being all planted at the same date, and their progress being carefully watched, I would suggest the application of burnt earth as an excellent manure for roses in adhesive soils, as well as for fruit trees where disposed to canker. Whether it acted by furthering drainage, or by opening the soil to the fertilizing influences of the atmosphere, or by fixing the ammonia conveyed to the soil by rain, I do not pretend to say, but its value is sufficiently apparent. I believe it is considered that the vegetable matter contained in soils is destroyed by the act of burning; and I do not think the remains of the materials used in combustion could exercise any extended influence, as the quantity compared with the earth burned is so small, and the earth comes from the heap burnt red and hard, and a great portion quite

free from the remains of the substances used in ignition. *Gard. Chronicle.*

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Burnt Clay.—I can fully confirm the statement of Mr. W. Paul, of Cheshunt, which appeared in the last week's *Gardeners' Chronicle*, as to the good effects produced in gardens, where the soil is strong, by the use of burnt clay or marl mixed with the ashes of vegetables and the charred branches of trees. I have had for some time past several of these burning heaps in the environs of my garden, which produce us in succession a very valuable manure; they are easily kept in a state of combustion, and all the care they require is, to cover and surround them occasionally with fresh clay or marl, that they may not burst out into an open flame. My gardener sowed two beds of onion seeds of the Globe, James' Keeping, and Strasburg sorts, mixed together, about the 10th of March last, with 1 lb. of seed to each bed. The beds were each of them 18 yards by 12 yards, and one of them was manured with good stable dung; the other by this mixture of burnt clay and vegetable ashes. The produce of the first did not exceed five bushels of an inferior size, the greater part having been destroyed by the larva of the onion fly; whilst that of the latter was 20 bushels of onions, as large as those imported from Portugal. Another remarkable circumstance is, that the former have not kept well; but the latter are as sound as possible, not a single bulb in the strings showing the least appearance of decay. The same burnt mixture has been applied with equal success in my fruit garden. I had observed a great decrease in my crop of apricots for several years past, and upon a careful investigation as to the cause, my gardener and I agreed that it must be owing to the tenacity of the border; we therefore had the old soil removed, and a quantity of this burnt mixture with a little fresh loam substituted for it. My gardener planted the border so renewed with runners of Keen's Seedling, in rows; they became strong plants by June, when they flowered and produced an abundant crop, and all my apricot trees were covered during the summer with well ripened fruit. I am so fully persuaded of the excellence of this kind of manure, that I intend to adopt it generally on my farm. It will there have a double advantage; for I shall be enabled to save the farm yard dung for composts, and I shall have the gratification of seeing my hedges neatly trimmed and my ditches well cleared out. Our stiff soils will be also rendered more friable, and will not suffer as they now do from the retention of wet on the surface. *Oswald Mosely. Rolleston Hall, near Burton-on-Trent. Ibid.*

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Durability of Oak cut in Winter.—We have a saying in Surry, that the sap of winter fallen oak is as hard as the heart of that which is thrown in in the spring. There may be a little exaggeration in this saying, but it serves to show the common impression of the comparative durability. *A. C. P. Ibid.*

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Budding and Inarching the Vine.—Wishing to increase the number of Muscats of Alexandria and Cannon Hall Grapes, I cut down a few vines; one-half of them was budded, and the other was inarched. To test the merit of each method fairly, both budding and inarching were done at one period. The result is, that by the former method, bearing wood has been produced nearly double the strength of that by the latter. In budding, the following is the method I pursued:—The old vines were cut down in the autumn of 1842. They were laid in March, 1843; as soon as they had made shoots a few inches long, two were selected on each vine, and all the others were taken off. These were tied in, and laterals were pinched regularly off them until May. The young shoots were then about two-thirds up the rafters, and nearly full grown in thickness at the base, but not ripened or turned brown. At that period the buds taken from young shoots with leaves not larger than two inches in diameter, were put on; the wood was left in the buds; they were inserted in the usual way, and tied firmly with a piece of matting. In the course of ten days or a fortnight they were united, the matting was undone, and the shoots were cut down to the buds; all shoots below the buds were taken off as they made their appearance. After this was done they grew away very strong and rapidly. Some of the buds showed fruit, but this was pinched off. The leaves attached to the buds never flagged. *W. G. Ibid.*

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Geranium Leaves for Wounds.—The leaves of the pelargonium are, as everybody knows, strongly scented; some smell of rose, others of lemons, apples, etc.; there are also other sorts which, when bruised, have a nauseous and rather disagreeable odor. All the species and varieties of this genus contain a large quantity of essential oil, which is usually fatty. There are several sorts of geraniums, which are cultivated in the open air in the south of France, and particularly at Nice, for the purpose of extracting the oil, which is sold to the perfumers. The leaves of all pelargoniums have also the property of quickly healing cuts, places where the skin has been rubbed off, and other sores of that kind. You take a leaf or more of the pelargonium, which you bruise on a piece of linen; you then apply it to the sore place, and it often happens that one leaf is sufficient to heal the wound. It sticks closely to the surrounding skin, helps to close the flesh, and heals the wound in a short time. I have often tried this method, and found it quite successful; and others, to whom I have recommended it, have given an equally favorable report. The *Pelargonium zonale*, [common horse-shoe geranium,] one of the oldest green-house plants, is much more efficacious than others of the same kind; its shining fleshy leaves render it far preferable to those which are ribbed and downy. *Revue Horticole.*

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The Ripening of Fruits.—A prize having been offered in the year 1821, by the French Academy of Sciences, for a proper elucidation of this important and highly interesting subject, three papers were received; one of which written by M. Berard of Montpelier, gained the prize, and was afterwards published in the *Annales de Chimie*. M. Berard's memoir is exceedingly long and turgid; the following summary of useful facts is, therefore, presented to the reader.

Fruits do not act on the air in the same manner as leaves do: the results of the action of the former (both in light and darkness) are at every instant of their formation and growth, to suffer a loss of carbon; which, combining with the oxygen of the atmosphere, forms carbonic acid. *The loss of carbon is essential to the ripening of the fruit;* for, if the latter be placed in an atmosphere deprived of oxygen, the function of throwing out carbon will become suspended, the *ripening stopped*, and if the fruit remain attached to the tree or plant, it will dry up and *die*.

Fruits which are enclosed in shells, however, may and do ripen; for the membranes which form the husk are naturally permeable to the air: indeed, the communication between the external and internal air is so free, that both have always been found to be of uniform composition; that is, when analysed, the atmosphere within the shell has furnished the same relative quantities of oxygen and nitrogen as the air which we breathe.

When fruits separated from the tree (even though capable of completing their own ripening) are placed in atmospheres or media deprived of oxygen, they will not ripen; the power of ripening, however, in such case, is only *suspended*, and may be induced to act, or be re-established, by placing the fruit in an atmosphere capable of taking carbon from it. If the fruit, however, remain too long in the deoxygenated situation, it will have lost the power of ripening: even though it preserve nearly the same external appearance.

From these facts the inference is plain, but highly important, viz: that most fruits and especially those which do not require to remain long on their parent trees, may be preserved for a considerable time; and thus their utility and the pleasure which they afford be prolonged. The most simple process consists in forming a paste of lime, sulphate of iron and water, placing the same at the bottoms of glass or stone bottles, or jars; and then introducing the fruit pulled a few days before it would otherwise have become ripe. Such fruits, however, are to be kept from the bottoms of the bottles or other vessels, and as much as possible from each other: at the same time care must be taken to close the bottle or jar with proper corks and cement, either with or without bladders or tin covers, according to circumstances. Persons at all acquainted with chemistry, will perceive that fruits thus placed, are situate in an atmosphere entirely freed from oxygen, (which has been absorbed by the paste,) and, consequently, that they may be preserved for a longer or shorter space of time, according to their nature: Peaches, Apricots, Prunes, and several species of plums, from *twenty days to a month;* Pears and Apples for full *three months*. If either of these fruits be withdrawn from their confinement, after their respective periods, and be exposed to the air, they will ripen extremely well; but if these periods be much exceeded, they will undergo partial alteration and will not ripen at all.

It is well known that when ripe fruit is long exposed to the air, it will rot and decay; in such cases the fruit first changes the oxygen of the surrounding air into carbonic acid gas, and then the same gas is evolved from its own substance in a large quantity. Indeed, the presence of oxygen gas is necessary to the rotting or decay of fruits; for, when it is absent, a different change takes place. When the fruit cannot ripen except on the tree, its ripening is not caused by any chemical change of its substance, whilst still *green;* but by the change or addition of *new substances* furnished to it by the capillary vessels of its parent stem; and it is a remarkable and well ascertained fact, that *when fruits appear to have lost the acid taste and qualities which they possessed in their unripe state, it is because that taste is hidden by the large quantity of sugar which they receive during the process of ripening.*

In those fruits which ripen *after separation* from the tree, likewise, the quantity of sugar is found considerably to increase: in such cases, however, it must be formed at the *expense of the substances previously composing the fruit*. *Gum*, *lignin*, and *water*, are the only substances present; the proportions of which diminish during the process: it is, therefore, natural for us to conclude, that it is those portions of these substances which have *disappeared*, that have been converted into sugar; and as the *lignin* contains the greatest quantity of carbon, we must conclude that it is from *it*, the oxygen takes the carbon in order to form carbonic acid—a change so essential in the ripening of fruits.

It is difficult to suppose that in those fruits which ripen early on the tree, *all the sugar* should be sent into the fruit from the plant: it is much more probable that the substance of the fruit acts upon the air—or *vice versa*—and thereby forms sugar, like those fruits which have been separated from their parent stems; but not in sufficiently large quantity to render them *identical in quality*. In such cases, it is necessary that recourse should be had to the tree itself, to complete the process of ripening.

In conclusion, it remains to be stated, that the alteration which the *lignin* undergoes during the process of ripening, or *saccharification*, continues during the decay of the fruit, under any circumstances. During the process of decay, the *lignin* becomes brown, and its decomposition, as well as that of the gum and the water, occasions the formation of comparatively large volumes of carbonic acid gas. The sugar also, (if any exist,) becomes decomposed at this time; and, to its *disappearance*, in a great measure, is to be attributed the peculiar taste of decayed or rotten fruits. The sugar, during its decomposition, likewise, doubtless gives rise to the formation of carbonic acid; a great part of which, combining with the hydrogen evolved from the decomposing water, forms *carburetted hydrogen*, which is the main source of that ill or miasmatic taste and smell, so characteristic of vegetable putridity. *The Gardener.*

THE LAST OF THE SUPERLATIVES.—The following unique description of the new Dahlia, sent out this season by the Metropolitan Union of Florists, London, (taken from their circular,) is the best specimen of floral grandiloquence that we have yet seen. Certainly Holland, in the days of the tulipmania, produced nothingmore *exalteè*. Fortunately, buyers in England are able to look to the opin-

ion of the horticultural societies, gardening journals, and the number of prizes that a new variety has gained at the shows, as better guides in these matters—and judging from these there is little doubt that this is really a very fine new sort.—Ed.

The Golden Fleece, (Union.)—Golden nankeen buff, tinted with orange. A flower of so much rarity and beauty, matchless petal, perfect symmetry, producing blooms 4½ inches in diameter, unusually double and in circles closely rising above each other, whereby the edges only are visible, which gives it a revolving appearance; full constant centre, and well up; the color is so bright and enchanting, it would exhaust the power of any adjectives to promote the idea, and no pencil can do justice to its hue. It may be likened to sunset, when the orb of day reflects upon the verge of the clouds the memory and image of its departing glory. Mr. Salter, an eminent French cultivator, pronounced it to be *orânge glace*, which, from its metallic lustre, might be termed *or en flamme*, and, having seen it growing, will confirm its superior habit of plant and bloom, which latter is alike erect, constant, and profuse. The stock is very limited. No discount. Plants, 10s. 6d.; ground roots, 5 guineas.

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Figs.—With regard to these, I beg to offer a few remarks on what I have observed and put successfully into practice. The year 1818 was remarkable for abundance of figs, on account of its long duration of heat and drought. Happening to call during that year at the Duke of Richmond's Gardens, Goodwood, near Chichester, in August, I was much pleased, and at that time quite astonished, to see a row of very large standard Fig trees loaded with the greatest abundance of fruit, both ripe and unripe, in the highest possible perfection. The soil there is shallow, on a bed of chalk. I likewise observed during the same year abundance of Figs in many of the cottagers' gardens in Sussex, produced on standards that were growing in the same kind of shallow soil, and where the bottom was nothing but chalk. Figs appeared to be no luxury in that quarter. In Kent I have observed good Figs and very fruitful trees on a similar bottom. At the late Lord Audley's Gardens, Belvedere, Erith, I have observed the most abundant crops of fruit, raised for several years in succession in the highest state of perfection, where the soil is shallow and dry, and where the subsoil is nothing but a rock or bed of pebbly gravel, called there pea-gravel; after a heavy rain, scarcely a particle of earth was there to be seen on the surface. I have long observed that shallow dry soils are the best for producing good crops of Figs, and where the trees have been planted without much care, and allowed to grow without much pruning or nailing, which does not at all suit the Fig. Such places as stable-yards, farm buildings, in any dry corner, amongst stones, chalk, brick-bats, or lime-rubbish, where they are well trodden or paved about the trees, are the places to see fine crops of good Figs. Trees in such situations have a number of joints in the length of one inch of young wood. Over-luxuriant trees never bear abundant crops. The wood of a Fig tree that is long jointed, pithy, and soft, does not produce Figs in perfection. The growth of the Fig requires to be checked, if fruit is wanted. In preparing for growing Figs, instead of trenching the ground, I should recommend merely forming a flooring under them with concrete, brick-bats, stone, chalk, gravel, lime-rubbish, or with whatever is most convenient to be had, if the bottom is not naturally chalky, rocky, or gravelly. Those that are troubled with over-luxuriant Fig trees might practice the following method, which I have myself done with good success:—Cut a trench, three or four feet wide, in front of the trees, (if against the wall, or all round them, if they are standards,) below all roots, which should be cut clean off as the trench is dug, then fill up with any of the above materials that can be procured, pouring a quantity of grout amongst it as the filling up proceeds, or the roots will soon get through it; otherwise, build a wall, as recommended by Mr. Errington. Figs require to be planted high, and the depth of soil about them should not be more than one foot. If the season is very dry when they are ripening their fruit, the trees will be much benefitted by giving them a good soaking of water, as that is the time when they will be benefitted by water. *Observer. Gard. Chron.*

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Garden Walks.—Permit me to remind your readers of the following plan for making garden walks, which has now been published by you so long as to have been forgotten by many. Procure a quantity of road sand, or similar powdery material (finely sifted lime rubbish will do,) and let it be thoroughly dried, so that it feels like dust when handled. Also sift out of the cinders of the dwelling-house, &c., the finer parts, and let them also be made perfectly dry. Mix these carefully, two parts road sand to one of ashes. In a dry place on a dry day, spread a quantity of the mixture as a bricklayer spreads his lime, with a hollow in the middle. Into this hollow pour some coal-tar boiling hot; incorporate the whole with a shovel, as if making mortar, and when a thick paste spread it three or four inches thick over the ground laid out for the walk. The ground should be previously beaten as level as possible. Powder it all over with dry and rather coarse sand, after which a few passages of the roller will press it level. Leave it for a few days to harden, after which the walk is fit for use, and will last for very many years. The The composition must be made and laid down in very dry weather. As it appears to be quite hard and impervious to water, it might probably be used advantageously in cattle boxes, dung pits, and farm yards, to prevent the liquid part of the manure escaping, and would serve as an answer to the question once asked in your columns—"What is the best and cheapest flooring for a pigsty." *Gardeners' Chronicle.*

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Directions for Cucumber Growing for the Market.—My seed pit is built of solid 4-inch brick work laid in cement: it holds 200 4-inch pots, and has two lights; but of course the size should be in proportion to the demand. The laps of the glass are all puttied, and painted with anti-corrosive paint, which is cheaper and lasts much longer than any other paint; no putty is employed, except in the bedding of the squares, they are merely paint-

ed, and no drip ever enters the pit. The pit is bottomed with a few rough boards, and over these about 3 inches in depth of mould is put, on which to set the pots level. The dung is applied fresh from the stable-yard, making a very substantial lining about two and a half feet in width at the bottom.

As soon as the pit has become sufficiently heated, the seed is put into a pan of water, in which it is allowed to steep for 24 hours; after which it is sown in pans of two inches deep, in dark coloured mould of a light nature, fresh from a pasture which has been under grass for many years. As soon as the plants are up and the seed leaves separated, they are potted off into 4-inch pots, using the same mould as before with a bit of turf for drainage. Two plants are put into each pot, placing the plants in the pit east and west, and no water is given for three or four days, in order to prevent the tender stems from damping off. Air is given day and night both back and front, and the heat is kept up at night to 65° and by day to 70°. The plants are shifted right round every three or four days, and they are watered when required with soft tepid water.

As the plants only remain in the nursery bed for about three weeks, the large pits should be prepared for their reception by the expiration of that time. This is effected by lime washing their insides, hunting out all woodlice, and by covering the pipes which traverse the middle of each pit at the bottom for bottom heat with a layer of oak faggots; putting some rough dung or straw over the sticks to keep the mould from mixing with the faggots. The mould, rough from the fields, is put in, so as to form a ridge in the centre of the pit to the depth of at least 16 inches, leaving the top of the mould about 2 feet from the trellis. The fire is lighted at least six days before the plants are put out; there being four dozen lights to one fire, and consequently much cold water and mould to heat. As soon as the mould is heated through, the plants are planted out immediately under the centre of each light, inserting them in the mould up to the seed leaf, and placing a stick to each plant reaching the trellis. The latter is formed by a strong stick under each rafter, and by hazel rods about 4 feet long, placed 5 or 6 inches apart. As soon as the plants reach the trellis their heads are nipped off. Saddles on the pipes made of zinc are kept full of water, and the plants are frequently watered with diluted dung water in a tepid state. Plenty of air is given, and the heat is kept up by day to 70°, and by night to 65°. The shoot is pinched off at the fruit, and not at the joint above the fruit, as is the practice with many, and by this mode the frame does not get so full of useless vines. Keep the male blossoms cleared off at all times, and after the plants come into hard bearing every encouragement must be given them, administering manure water freely. We have 100 lights, which require a great deal of tepid water up to the middle of June.

Our plants are generally in September just as healthy as ever, even after cutting three times a week all the summer, and then ripening the seed. We have cut on the 15th of April out of 48 lights 70 cucumbers at one cutting, averaging in length from 12 to 16 inches; and in April this year I cut 320 altogether. The quantity of water used during bright sunshine with the plants in full bearing, is about four gallons a week to each light, and this is always applied by sprinkling every day over head, at half past three, or about that time. and then of course the lights are shut down close. The water used is diluted manure water, obtained in the following manner: Water is thrown upon the fresh dung from the stables, and a tank being at hand, the water drains off and carries in solution the strength of the dung. I mix one gallon of this with three of water that has been exposed to the sun. I never in the height of summer water with cold water, for I am persuaded that half the diseases in cucumbers arise from watering with cold water from tanks not sufficiently open to the sun and air.

The admission of air is also a matter of paramount importance. I never give air at the front of the pits for this reason, that the moment you admit air in front and back a dry hot current is produced, which in cucumber growing above all things should be avoided; but if air is given at the back only, a circulation of heated air something after that under the Polmaise system will be maintained. And be it remembered, the older your plants the stronger heat they require. Shading is of course necessary in the first instance, until the plants gather sufficient strength, but it is only half starved, diseased, and badly rooted plants that require shading all the summer. To preserve them from woodlice, keep four or five toads in each pit, and after the plants have reached the trellises; the young woodlice among the leaves may be caught by placing small pots full of hay on a ledge under each light. These I examine every day, and by this means find that the woodlice are very much reduced in number. I have paid six shillings a dozen for toads, which shows the value I place upon these commonly despised but really useful animals.

I have bought all the new cucumbers advertised, but I may, without fear of contradiction, say that I have never found one so early and so productive as my Black Spine. I have now had it in my possession upwards of fifteen years; it took prizes at Ipswich in 1831, where it obtained first and second prizes at the same show. In 1834 it took the first prize at Chiswick, and in 1836 the first at Barnet. And since then for seven years past it has been the best at the first shows of the Royal South London Floricultural Society.

In conclusion, to grow cucumbers fine and handsome they must be grown upon trellises; the plants will bear better, continue to produce for a much greater length of time, and they will also in this way grow more robust and healthy, a circumstance no doubt due to the great circulation of air which plays constantly around them.—*Journal London Hort. Society.*

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QUINCE MARMALADE.—Let the fruit hang on the tree till one falls to the ground; then gather the crop. Pare, quarter, and core them; but scrupulously save every pip. The pips of quinces abound in mucilage, as may be perceived by taking one into the mouth and chewing it, when it will make the lips stick together as a piece of gum arabic would. Put the quinces with the pips into a stew-pan, with a sufficiency of lump sugar, and just enough water

at the bottom to keep them from burning. As the sugar dissolves and the liquor boils, continue stirring the whole mass. When the fruit becomes tender, break and mash it well with a spoon. In about an hour from the commencement of the operation, it will be cooked enough. It may then be turned out into preserve jars; a portion should be put into shapes, to be used at dessert in the same way as Bullace and Damson cheese. The next morning it ought to be perfectly stiff and gelatinous, from the strong mucilage of the pips having been thoroughly incorporated with the whole mass. The quantity of sugar used may be rather less than is necessary for other preserves. If tied down the usual way it will keep good for a long time. The medicinal qualities of this preparation are applicable to those cases in which mucilage is administered internally; and a pot of quince marmalade would be as agreeable a prescription to a dysuretic patient, as a dish of roasted onions or a dose of linseed jelly.

Everybody whose garden or orchard is above the very smallest size ought to have at least one quince tree, particularly if it contain any low moist corner. To such a situation they may be removed at a considerhble size; their cost at the nursery is trifling, and many a useless shrub, such as the Snowberry, or the Privet, might advantageously be uprooted to make way for them. Few low-growing standards are more ornamental. In a small space they exhibit all the members and proportions of a full sized tree; something like the Chinese Koo-shoo, or artificially dwarfed Oaks, Hornbeams, &c., that are grown in pots; there is the old looking trunk, the pendant and grotesquely contorted branches; there is the scattered foliage, like the natural day, dark one-half and light the other; in the spring there are large, delicate blossoms, and in the autumn drooping fruit.—*Gardeners' Chronicle.*

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Seakale.—The Seakale-bed is to be planted in March, in straight rows five feet asunder; the plants in each row to be 18 inches apart. It is, of course, understood that the ground be thoroughly trenched and manured as usual. Something, but not much, is gained by obtaining year-old plants from the nursery, instead of sowing the seed in the rows, there to remain. By the first method, you have a larger cutting the ensuing spring; but you may cut from your seedling plants, which will have suffered no check by removal, and will grow with corresponding vigour.

Some time in December, not too soon, when the foot-stalks of the leaves have fairly separated themselves from the crown of the plants, heap over each about a quarter of a peck of sea-sand or wood ashes; if not to be had, any light unmanured soil will do. Then earth up the plants from a trench dug along the space between the rows, exactly as if you were earthing up celery, only that no leaves appear above the top of the mound. The earth should be heaped up till it is about two feet above the crowns of the plants, and then flatted down with the back of the spade, and the whole made very smooth and neat. The long trench between the rows of Seakale will act as a drain during the dead time of winter. In the spring, when the shoots begin to push, large cracks will be seen in the bank of mould, and a trial may be made with a trowel, as soon as they are supposed to be sufficiently advanced for cutting.

The Seakale thus obtained is larger, more succulent, and more delicately flavored than that blanched under pots. In one case the growing shoot is constantly in contact with the damp mould, and absorbs moisture instead of parting with it. In the other, the Kale is subject to all the influences of air, though excluded from those of light, from which, however, it is only protected by a porous, imperfectly closed vessel. All the expense of pots and manure for forcing is saved; and the only objection to the adoption of this plan in all cases, is, that the crop comes in too much at once. But by having rows of Kale in different exposures, a difference of at least ten days may be made; and a few plants at the foot of a south wall, earthed up from the border, and merely so covered with mould that it slopes against the wall, will afford a very early gathering.

No second cutting should be attempted; not so much for fear of weakening the plants, as because the weak shoots thus obtained are comparatively worthless. The earth should be levelled into the trenches, exposing the crowns of the plants, and by introducing some rank manure there will be plenty of time for a crop of cauliflowers (in single line) before the increasing leaves of the Seakale require their removal.

This valuable esculent, so easy of cultivation, requiring no peculiar advantages of soil, climate, or situation, well deserves to be more extensively propagated. Those who form their judgment from the estimation in which it is held in and about London, are little aware how far it is from being general in the remoter districts of Great Britain. It is admirably adapted by its hardiness to such countries as Canada, Norway and Sweden, Northern Russia, &c., where if earthed up before the frost came, it would lie dormant under the thick snow, and be ready on the return of spring to put forth its delicious shoots. It is also fitted for those northern insular situations where the temperature never rises above a moderate degree, and where the rains of summer and the constant damps of winter would rot our more tender vegetables. The introduction of a bed of Seakale into a colony or island where it had hitherto been unknown, would be an additional proof of the usefulness of the *Gardeners' Chronicle.*

To Cook Seakale.—After being well washed, tie it in small bundles for the convenience of taking up, and drop it into a saucepan of boiling water, in which a little salt, according to taste, has been dissolved. Keep it boiling. In about 25 minutes it will be done enough, which may be known by trying it with a fork. Sir Humphrey Davy tells us that the reason why vegetables and fish should be plunged in boiling salt and water is, that this solution boils at a higher temperature than plain water, and that the sudden scalding fixes the albumen, mucilage, and other nutritive parts of the viand, instead of their being macerated and sodden, and so partly lost in luke-warm water. The most economical mode of serving Seakale is to lay it in a vegetable dish with a strainer at the bottom, and to send up in a small tureen any sauce that may be

desired at the same time. The usual way is to lay it on sippets of toasted bread, and pour over it some white sauce, or melted butter made with milk instead of water. But if the toast is not intended to be eaten, but only to serve as a draining cushion to the vegetable, and then cast out to pigs, or, in a town, probably to the kennel or dust-hole, such a wasteful proceeding is, to say the least, culpable, while so many of our fellow-creatures are perishing for want of a like morsel.—*Gardeners' Chronicle.*

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HINT TO ORNAMENTAL PLANTERS.—The question has often occurred to me, as it probably has to many others, why do artificial plantations never have the appearance of natural woods? The principal cause appears to me obvious and simple, and one easily removed. It is this: that planters invariably make the great mistake of filling up their plantations to the very extremities with trees as thick as they can stand together. The consequence is, that though they may take a pleasing outline for their boundary fence, yet that outline remains stiff and hard, consisting of trees of nearly uniform height and age; and when viewed at a distance, the plantation looks as if its edges had been clipped by the gardener's shears, a defect which the growth of a hundred years often fails to obliterate. Now let the observer turn his eyes on any natural wood; there everything is quite different, he will find no precise definite outline; on the contrary, the skirts of such a wood almost always consist of widely scattered trees of various growth and age, forming groups with many vacancies and intervals bare of trees running up between them. This it is that gives that pleasing variety which offers so strong a contrast to the productions of the landscape gardener. If, then, the above observations are well founded, the planter may easily avoid the defect of which I complain, which often makes a plantation rather an eyesore than an ornament. Let him only imitate nature, by fringing his plantations with widely scattered trees, interspersed among numerous vacancies and intervals, as above described, and I feel confident of the good result.—*Gard. Chron.*

DOMESTIC NOTICES.

THE GENESEE FARMER.—Among the first on our exchange list is this truly valuable agricultural journal, published at Rochester, N. Y., and conducted by Dr. LEE, in its agricultural, and Mr. BARRY in its horticultural departments.

Dr. LEE is widely and favorably known by his earnest devotion to the cause of *agricultural chemistry*. Both by lectures and editorially, has he labored for a long time most zealously to awaken farmers to the importance of the science of chemistry, and to render that science plain and comprehensible to all persons engaged in agricultural pursuits.

It is not, perhaps, too much to say that the Genesee Farmer has done more for the benefit of griculture, in this particular department, than any other agricultural journal in the Union. The horticultural department is managed, in the main, with excellent practical knowledge. as well as spirit and taste. We are heartily glad, therefore, to learn that its influence is gradually extending itself in every direction.

In the leader of the April number, we perceive Dr. LEE has entirely misunderstood the editor of this journal, and our personal views in writing the articles on the *Philosophy of Manuring Orchards*, which has attracted some little attention in various parts of the Union. Certainly, nothing was farther from our wishes than to appear to claim any originality in bringing forward the now well known chemical theory regarding special manures. It is not a department to which we have particularly devoted ourselves, as Dr. LEE and others have done, though we have always felt bound not to let leaders, like himself, get wholly beyond our more limited vision. On the contrary, we not only gave especial credit to Dr. EMMONS, of Albany, for his most valuable researches into this subject, but published, in a note, his exact analyses.

We did this in the spirit of "honor to whom honor is due," and always wish to follow this maxim. Strictly, however, we were not bound to do so; for LIEBIG and other writers had already made the theory of special manures widely known, and there was no need of any reference to authorities. The following remark, from one of the most distinguished men of science in England, is to the point on this subject:—

"Discoveries, when once communicated to the world, become public property; they are thrown into the common stock for mutual benefit; and it is only in the case of debatable opinions, or of any recent or unconfirmed observations, that it really interests the world that authorities should be quoted at all."

Still, we did consider Dr. EMMONS as highly deserving of especial thanks of horticulturists, for directing his attention to the *analysis of fruit trees;* and it was with the design of drawing the attention of the horticultural public generally to this subject, that we took it up precisely at the season of the year when it was most applicable, and treated it as we did. Though we had no hope of throwing as much sunshine on the garden and orchard as Dr. LEE has done on the farm, we hoped to clear away a little of the ground-fog, and trust our contemporary will, on consideration, take what he calls our "waking up" with his wonted amiability.

.....

POMOLOGICAL RULES.—To the list of Horticultural Societies which have adopted the Rules of Pomology in our last number, we are now able to add the RHODE ISLAND HORTICULTURAL SOCIETY, and the DETROIT (Mich.) HORTICULTURAL SOCIETY.

The adoption of these rules so generally throughout the country cannot but be attended with the most beneficial results to pomological science, by giving it more definiteness in the future, and to point growers and nurserymen, by guarding in some measure against the introduction, every year, of a long list of new names and new varieties, totally unworthy of cultivation.

We observe that one or two of the agricultural journals have mistaken the spirit and intention which actuated those who originated these rules. It is a great error to suppose that they intended to *force* the horticultural community to adopt any set of rules, or to govern or oblige them to act within certain limits. Far from it. These rules originated in certain crying defects in the system of naming and adopting new varieties hitherto that prevailed in our oldest societies, by which any person, even if totally and confessedly ignorant of existing varieties of fruit, and therefore necessarily unable to decide whether a seedling of his own might be better than any sort hitherto known, or inferiour to 20 other second rate sorts—whether such a person should be able to give his seedling to the public with a high sounding name, or whether it should first be submitted to the fruit committee of some Horticultural Society, or some competent pomologist to decide upon its merits. This is so manifestly for the public protection and the public good, that there cannot be a dissenting opinion in the mind of any reasoning being.

A few of the leading societies having determined to adopt these rules, we brought the matter before the public in our columns, and requested all the Societies in the country to adopt them, and thus make what was originally intended as a local matter, one of general benefit. Neither the Massachusetts, Pennsylvania, or Cincinnati Society had the slightest wish or desire, as the journals we have alluded to have supposed, to force a code of pomological laws upon the country. They furnished us their rules for publication, leaving other societies, and the horticultural public generally, to adopt them or not at their own pleasure.*

We are heartily glad that almost all the leading horticultural societies have now adopted these rules, for we look upon it as a new era in pomology. We are tolerably conversant with pomology abroad, and so far as we can learn, it is the *first set of pomological rules yet adopted, and published, in any country.* That there is great need of some rules of this kind on the continent of Europe, no one, conversant with the confusion of nomenclature in the pomological works of France and Germany, no one, conversant with the practice of some nurserymen of those countries, of sending out a single fruit under several different names, thus injuring and deceiving purchasers, can doubt for a moment.

We hope to see pomology, under the wholesome influence of the American Rules, take the shape of a more definite and precise science. He who raises a new fruit of merit, will then the more easily place it before the public and reap his reward; while others will not find it so easy to palm off upon the community second or third rate varieties as sorts of superlative excellence.

* We owe the Massachusetts Society an apology for publishing the rules *incorrectly* the *first* time they appeared in our columns—having, in the haste of sending them to press, taken an uncorrected proof of the original draft, instead of the corrected copy as actually passed, and as published last month. The rule restricting the publication of new varieties to one or two journals "of the largest circulation," originally intended only to simplify the search for the records of original descriptions, was actually passed without the latter clause as likely to be considered exclusive by journals not coming within the limit, though perhaps the benefit to the community would have been clear enough.

.....

APPLE TREE BORER—TO PREVENT ITS ATTACKS. This insect (*Saperda bivittata*,) is fast becoming the most serious pest of the orchardist, in some parts of the middle and eastern states. Perforating the trunk in every direction, it soon destroys its whole structure; and while he, who is unacquainted with its habits, only perceives in the bark a few holes, as if made with a common awl, the insect has, perhaps, made a "powder-post" of the whole tree.

It is a very difficult insect to combat; but May is the month to make war upon it, since at the close of the month, or early in June, it makes its exit from the tree, and sets about depositing eggs in a score of new branches or trunks, to perforate them in like manner. Hence, it is evident, that by destroying every borer, if it were possible, before he emerges from the tree, we shall destroy the whole brood.

There are two points to be aimed at: one, to destroy all that can be reached before they emerge from the tree; the other, to prevent their laying their eggs in the bark of certain other trees.

We are inclined to believe that one of the best modes of doing this, is to be provided with a mixture, composed of soft-soap, tobacco water, and flower of sulphur, made by adding a pint of the sulphur and as much strong tobacco water to a gallon of soft-soap as will bring the whole to the consistency of paint. With a small syringe, (that may be had for a shilling at an apothecary's,) the aperture of which will about match the hole of the borer, inject this liquid into every hole that can be found till the hole is filled.

Then, with a stout brush, wash the trunk (removing the soil a little at its base first,) thoroughly with the mixture. All the larger branches should also be washed thoroughly, so as to leave no part of the bark uncovered.

We ascertained last year, by experiment, that the borer, in its winged state, when seeking for trees in the bark of which to lay its eggs, immediately left all that had been washed in this way—even though the coating had been on for several weeks.

This insect usually chooses the collar of the tree, near the surface of the ground, in which to lay its eggs, though, when abundant, it also takes other parts of the trunk, and especially the forks of the branches near the trunk. By coating all these parts, we shall perhaps be able to prevent its destroying the tree; and while, by the injection of the liquid into its holes, (if this proves effectual,) or by the old mode of thrusting wires into the holes, the parent stock must be as much diminished as possible before the insects are ready to come out in a perfect state.

Not only the apple tree, but also the mountain ash, the quince, and the hawthorn, suffer greatly by this insect. If no pains are taken to diminish its numbers, it will become a serious obstacle to the cultivation of these trees.

.....

Black-Knots in Plum Trees.—The only successful way of getting rid of the "black-knots" that we have ever known, is that of cutting off every branch or part of a branch covered by this excresence and burning it; and this should be done before the middle of May. But it occasionally happens that a wart or spot will burst out on the very body of the tree, or upon some large and important branch, to lop off which is to destroy the whole tree, or its head. To amputate the wart itself is not sufficient; for its poison is diffused through the sap in the surrounding parts, and, like a cancer, is sure to break out again very soon.

Last spring we made an experiment upon six trees in the garden of a neighbor, which were somewhat infested with knots, as follows: All the knots at or near the ends of the limbs were entirely destroyed by taking off the branches a foot or more below the wart itself. The few that remained were upon the trunk, or on the main branches near the trunk. These were all carefully and deeply cut out down to the sound healthy wood. Three of the trees then had the wounds washed directly with a solution of copperas water, (made by dissolving 2 drachms of copperas in a quart of water.) The wounds on the other three trees were left untouched.

At the present time those wounds to which the copperas water was applied look quite healthy, and are healing over rapidly; no indication of a return of the knots being visible around or near them.

The wounds on the remaining three trees left unwashed are healing more slowly, and in more than half the cases, small warts have again made their appearance on the edges of the wound,—in two instances completely covering it in one season.

The discoveries of M. Gris, relative to the effect of copperas on sulphate of iron, as a specific upon diseased conditions of the sap and leaves, (published in our last volume,) induced us to make this experiment. Though it is too early to pronounce an opinion, the indications of success are encouraging, and we suggest a renewal of the experiment to others.

....

Persian Yellow Rose.—This is truly a charming addition to our collection of roses, large as the latter is. Indeed we should say that the smallest collection is scarcely complete without it. It is far superior to the *Harrison* in the form and shape of the flower, much more double, and a fine, clear, distinct, yellow in its color. It also blooms very freely. It was introduced from Persia to England, by Sir Henry Willock, and presented to the Horticultural Society of London in 1838. It has now found its way to this country, and is for sale by most of the rose growers.

.....

Detroit Horticultural Society.—We have received from T. H. Hinchman, Esq., secretary of this society, a report of its proceedings. The society was organized March 6, 1846. Last year monthly meetings were held from May to October; and these exhibitions have already awakened a lively interest in the neighborhood of Detroit, and the influence of the society will no doubt soon be seen throughout that new state. At the May exhibition, one hundred and fifty varieties of tulips were shown. Plums, cherries, pears, etc., and also the Isabella and Catawba grapes thrive well in that part of Michigan; and the products of the kitchen garden, (including melons,) are unusually excellent, large and abundant.

"At the last meeting of the society," says the secretary, "the Rules of American Pomology, as published in the Horticulturist, were adopted. The society, in the confused state of nomenclature, had already felt the want of such rules."

.....

The New Dahlias.—The English Dahlia growers are not content with "perfection"—or what appeared perfection a few years ago—in this gayest of summer and autumn flowers. Acres and acres of ground are devoted to the production of extraordinary new seedlings, and the arts of hybridizing and careful selection of seeds are brought into play every year, to produce some still greater novelty of form and colour.

Among the prize sorts of last season, we notice "fancy varieties," the flowers of which are *yellow*, tipped with *white*, *dark maroon* tipped with *light pink*, *primrose* tipped with *bright red*, *buff* tipped with *white*, etc. The most highly esteemed of the new plum-colored sorts are perhaps *Nell Granger*, *Queen of England*, *War Eagle*, *Shylock*, and the much talked of, new, gold-coloured English seedling—*Toison d'or* or Golden Fleece.

The greatest Dahlia growers in America are Messrs. Thorburn & Co., of New-York. The soil of their garden at Astoria is particularly well adapted to this plant, and the effect of their enormous parterre, last autumn, when we saw it there in full bloom, was truly magnificent. From the lead which they have taken in the culture of the Dahlia (we have heard that their sales in the months of May & June, 1846, were over 6000 plants), they are enabled to search the choicest collections of England and the continent, every year, for all the finest prize seedlings, without regard to cost. These new sorts, which are often procured at the cost of several pounds sterling per root, are imported in winter, propagated largely in early spring, and offered for sale in May of the same season they are imported, at greatly reduced prices.

The introduction of the new "fancy Dahlias," exquisitely variegated, striped, and tipped with various bright colors as they are, forms a new era in the culture of this popular Mexican flower, and those who, three or four years ago, supposed they had exhausted all its novelty and interest, may now begin afresh, with the new varieties, with more zest and satisfaction than before.

.....

Gas Liquor.—Gas liquor, as the ammoniacal water of the gas works is called, is a powerful manure. Mixed with water, in the proportion of three parts gas liquor to twenty parts water, it has been used for watering grass in the garden of the Horticultural Society of London, and one rod so

watered has produced eighty pounds of grass, while that left to itself produced only twenty pounds.

A friend in New-York informs us that he watered a pear tree two years ago with diluted gas liquor, (about six gallons gas liquor to 20 gallons water,) so as to thoroughly soak the soil about the roots two or three times in the course of the summer. The tree was an "outcast" Doyenné, and had borne none but *cracked* pears for years. Last season it bore a crop of fine smooth fruit. Those who repeat this must be careful not to use the gas liquor too strong.

....

Hybridizing the Grape.—I am very desirous of crossing our native grape with the best foreign sorts, but I do not very well see how it can be done, as the two do not come into bloom at the same time. Will it do to keep the pollen of one till the other is in a fit state, or will it injure pollen to carry it some distance? *J. W., Baltimore, Ap.* 1848.

[Pollen may be kept for months without the least injury, if sealed up in a dry phial, or wrapped up in sheet lead. If our friend wishes to fertilize the native grapes in the open ground, before the foreign varieties out of doors are in bloom, he can do it by procuring pollen from some vinery of foreign grapes in his neighborhood, the blossoms of which are fully expanded. It will not injure pollen in the least, to carry it a thousand miles.—Ed.]

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Trees for the Sea Coast.—Pray give me, if you can, the names of two or three forest trees that will grow quite on the sea coast, where most of the commonly planted trees fail? It must of course be something that will stand sea wind and salt spray. Yours, *A Cape May Reader.*

[The two hardiest trees for such positions are the Balm-of-Gilead poplar and the common Buttonwood or Sycamore. The oriental plane tree, to be had in the nurseries, is very slightly different from our common Buttonwood, and is not attacked by the Sycamore disease. The best shrub for the sea-side is the Sea Buckthorn, [*Hippophea Epamnoides.*—Ed.]

....

Bark-bound Trees.—Dear Sir—Can you or any of your correspondents inform me how to treat trees that have become bark-bound—i. e. the bark on the trunk close and rigid, refusing to swell kindly and in proportion to the growth of the upper part of the tree? I have a number of trees in this condition, by which the trunks become mossy, and the vigor of the tree impaired. Yours, &c., *B. C., Pittsburgh, Pa., Ap.* 2, 1848.

[Scrape the bark with a dull knife, and then scrub and wash it thoroughly with strong soap suds. In most cases a repetition of this washing twice or thrice in the season, will remedy the difficulty. If, however, the case is a stubborn one, bind straw round the trunk, after washing it, and let it remain the whole season.—Ed.]

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Aimee Vibert Rose.—I have seen no notice of this very fine variety in your pages. I prefer it to every other Noisette. Its flowers are *pure white* (the buds tinged with pink before expanding), and are produced in continual succession all the season, not few and far between like some other Noisettes. I have a whole bed of it, and there is not a day during the summer or fall that I cannot cut half a dozen boquets of this variety alone. It is also quite hardy, and the foliage is of a fine deep green, the plant neat and compact in its growth. Pray recommend it. *J. B. S., Phila., Ap.* 10, 1848.

[This we do most willingly, as it is not at all overpraised by our correspondent.—Ed.

.....

Liquid Shellac for Wounds in Trees.—This is at once the neatest and most perfect of all applications to the wounds of fruit trees, that we have ever used, and we are glad to find it coming into popular use. We first made it generally known in our work on fruits, p. 3[illegible], and we have not heard of its being tried in a single instance when it did not give entire satisfaction. The following is an extract from a letter received lately, bearing testimony in its favor:—

——— "After trying half a dozen compositions or plaisters, highly commended in books or journals, for keeping the air from wounds in fruit trees, I perused your work and saw the recipe for making *liquid gum shellac* for this purpose. I immediately made a quart bottle full, by dissolving a shilling's worth of gum shellac in a quart of alcohol, and as soon as it was ready for use, I applied it largely in my orchard pruning. It is really a most complete thing for the purpose, as it entirely shuts out the air, and preserves the wood in a healthy, sound state, so that the bark commences healing over it at once. When you are trimming an orchard, and it is requisite to take off occasionally a pretty stout branch, something to cover the wound is very important—because if left bare a black, decayed spot soon begins, which is the first step towards the rotting and decay of the whole trunk. The superiority of the liquid shellac consists in the thinness of the layer put on, the tenacity with which it adheres in all weathers, and the neatness of its appearance Then, too, it is always ready when wanted, and if, by gradual evaporation, it should need a little thinning in the bottle, a little alcohol is added. In order to have it always ready, I got a tolerably wide mouthed bottle, and, boring a hole through the cork, passed the handle of a small brush through the cork at such a point that, when the cork is pressed in, the brush is near the bottom of the bottle. The cork and handle are then all of one piece, as it were, and while the liquid is prevented from drying up, the brush is always ready and in good order.

I now use the liquid shellac even for the small wounds made upon pear and peach trees, shrubs, etc., by cutting off branches of the size of your thumb. I find they heal over much more rapidly and smoothly than when left bare." Yours, truly, *J. S., Phila., April,* 1848.

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Fruit Growing at the South.—Dear Sir:—I see in almost every number, more or less from your gifted correspondents on the subject of fruit-culture at the North and West, and also many tests of fruits suitable for those climates; but nobody says a word about what can be done in the "Sunny South," in the way of raising the different varieties of fine fruits. This is to be regretted the more, as we

"Southern folks," who have been used to cultivating little else but corn and cotton, know but very little indeed, in regard to the proper management of fruit trees, except perhaps the peach. And even the peach tree is left generally to take its own course, and to live or die, whichever is most convenient.

I have long wished to see something from yourself or correspondents, on the foregoing subject, from southern horticulturists of experience.

Many in this section, feel anxious to raise the fine kinds of plums, cherries, apricots, and pears, but they fear that the climate will not answer. Plums, apricots and cherries seem disposed to shed or drop all their blossoms just as the young fruit is forming, without the attack of any insect whatever. My apricot trees have just finished dropping their very last blossoms, to my very great disappointment. Now cannot you, or some of your experienced contributors, plainly point out the cause of this failure in the incipiency of the above named fruits, and tell how to apply a sure remedy? Whoever does so, certainly will be long remembered by us, as a pomological benefactor of the South.

I reside in latitude 30,41—my soil is a sandy, very friable loam, with a subsoil of sand and and clay; the soil, unassisted by manure, is poor, but produces well with a moderate application of manure. Peaches do very well indeed, and apples pretty well, and I have no doubt but pears will do well, and why plums, apricots, and cherries will not do well, is something that I feel particularly anxious to know. Your friend, *Robert Harwell. Mobile, March* 15, 1848.

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ABERDEEN BEEHIVE STRAWBERRY.—In a late number of the Horticultural Magazine, (English,) Mr. MATHEWSON of Aberdeen, Scotland, advertises a *new* strawberry, which he calls the "*Aberdeen Beehive.*" Of its merits we know nothing; but if an opinion may be formed of what it is, or is likely to be, from the testimony of an experienced cultivator, no strawberry at present grown in Europe or America can equal it.

In Mons. VAN HOUTTE'S "*Flores des Serres et des Jardins de l'Europe,*" for October, 1847, it is thus spoken of:—"It far surpasses every other known variety; being worth as much as 20 of them together. Each plant throws out from 50 to 120 clusters of fruit, which resemble a beehive, and so coming to maturity that you may gather 15 to 30 ripe berries at any one time. A single plant has borne, in the same season, 334 berries. For forcing, it is admirably adapted; and a dozen plants thus cultivated have yielded together 5600 strawberries. The extraordinary quality and beautiful appearance of the fruit, cannot be appreciated except by those who have seen and tasted them. Each berry is round, and measures 3½ inches in circumference; they are of a brilliant scarlet, which relieves the beautiful green of the leaves; the flavor high; the perfume delicious. As the colour of the flesh is the same internally as externally, they will make handsome preserves."

If this description be not exaggerated, here is a strawberry worth growing. But one nursery firm has imported it, that we know of,—Messrs. Winter & Co., of this village. *Wm. W. Valk. Flushing, L. I., January* 7, 1848.

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ERRRATUM.—In Mr. MANNING'S article on peaches, p. 401, for *Green Rareripe* read *Yellow Rareripe.*

MASSACHUSETTS HORTICULTURAL SOCIETY.

A business meeting was held March 4th, 1848, president Wilder, in the chair.

Francis Dana, Roxbury, was elected a subscription member of the society.

At a meeting of the society, held April 1st, the following gentlemen were proposed for membership.

Life—George W. Warren, Boston, by the president.

Subscription—Wm. S. Wilson, by Joseph Breck.

Voted, That the thanks of the society be presented to the New-York Agricultural Society for copies of their transactions.

A package of Onion seed was received from Charles W. Dabuey, Esq., of Fayal, and it was

Voted, That the thanks of the society be presented to CHAS. W DABUEY, Esq., of Fayal, an honorary member of the society, for his donation of a package of onion seed, and that the seed be placed in the hands of the committee on vegetables for distribution.

The Committee on Finance submitted the following report:

The Committee on Finance, in accordance with a vote of the society, authorising them to invest not exceeding *two thousand dollars*, as a fund toward meeting the mortgage on Horticultural Hall, beg leave to report,

That they have purchased 15 shares of old stock in the Old Colony Railroad, at 93 1-4 per cent of, say $1398,75, that the same has been paid for by the treasurer, and the certificate of said stock has been received by him.

The committee, in view of the present state of the treasury, and the right the society will have to take their pro rata share of the new stock in the Worcester railroad, if created, and for which a bill is now pending in the Legislature, would advise no further investment at present.

The same committee to whom was referred the letting of the society's store and cellar under their hall, have attended to that duty and respectfully report: That they have concluded a contract with Mr. Bowditch, the present occupant, to renew and continue his present lease for the space of two years, the price and terms in all respects to be the same, and recommend that a vote be passed, authorising the president to confirm and carry out said agreement.

All which is respectfully sdbmitted.

JOSIAH STICKNEY,
JOSEPH BALCH.

Voted, That the report of the committee on finance be accepted, and that the president be authorised to make a renewal of the lease.

Voted, That the president and recording secretary be a committee to provide tickets for members and the public for the coming season, and that the terms of admission be the same as last year. *E. C. R. Walker, Rec. Sec.*

PENNSYLVANIA HORTICULTURAL SOCIETY.

The stated meeting of this society was held on Tuesday evening, March 21, 1848, the president in the chair. The display was very fine and interesting, consisting of a number of tables of choice plants in flower, and vegetables unusual at this season. The president's gardener exhibited beautiful Rhododendrons, Acacia, Azaleas, Camellias, Oncidiums and other plants, and handsome bouquets; also, of forced vegetables, blanched sea-kale, blanched Rhubarb, Asparagus, heads of lettuce, new potatoes, kidney beans in pod, and remarkably large black spined and Turkey cucumbers. Mr. Buist presented a fine collection of plants, among which were a handsome seedling Rhododendron of merit, Ericas, Camellias, Brugmansia, Justicia, with many other plants, altogether a creditable display. Andrew Dryburgh exhibited a table of choice and well grown Camellias, Azaleas, Roses, etc. Benjamin Gulliss, a table of Azaleas, Amarylli, Mahernia, Roses, etc. Peter Raabe, a small but select collection. John Sherwood, a good seedling Camellia. Robert Kilvington, an interesting collection of indigenous plants, in flower, Aquilegia, Obolaria, Saxifraga, Geranium, Mitella, Tiarella, Hydrastis, Houstonia, Cardamine, with a number of ferns. John J. Smith, a remarkably good specimen of the Mistletoe, growing in a small branch of a white oak. James Ritchie, cut specimens of Camellias of select varieties, and two large collections of vegetables by Anthony Felten, and lettuce and radishes by Wm. Johns.

Premiums were awarded as follow: By the committee on plants and flowers, for the best specimen of a Rhododendron in a pot, and for the second best specimen, to B. Daniels, gardener to Caleb Cope; for the best seedling Rhododendron, to Robert Buist; for the best three Azaleas, for the best grown and finest flowered hothouse plants, and for the best grown and finest flowered green house plants, to B. Daniels; for the best and most interesting collection of plants in pots, to Andrew Dryburgh; for the second best, ditto, to Benjamin Gulliss; for the third best, ditto, to B. Daniels; for the best display of indigenous plants, to Robert Kilvington; for the best bouquet and best basket of cut flowers, to B. Daniels; for the second best bouquet, to Robert Kilvington; for the second best basket of cut flowers, to Andrew Dryburgh. And special premiums for Pansies, of two dollars, to Chalmers and Mc Donald, Camden, N. J., and of two dollars, to Peter Raabe, for a handsome collection of plants, and another of one dollar, to James Ritchie, for a collection of cut Camellias.

By the committee on vegetables, for the best and most interesting display by market gardeners, and for the second best, ditto, to Anthony Felten; for the best and most interesting display by amateur gardeners to B. Daniels, gardener to Caleb Cope; for the second best, ditto, to Wm. Johns. And a special premium of two dollars, for a very fine display of black spined and Turkey cucumbers, to B. Daniels.

The corresponding secretary reported that the president of the Massachusetts Horticultural Society had presented a copy of the first number of the Transactions of that society.

On motion, ordered that the thanks of the society be tendered for so acceptable a gift.

Members elected.—Robert Dunk, John Cassin, Samuel C. Witmer and Samuel W. Budd.

On motion, adjourned. *Tho. P. James, Recording Secretary.*

Monthly meeting, Tuesday, April 18, 1848, the president in the chair. There was a general attendance of members on the occasion, who appeared to be gratified with the exhibition. Among the many interesting objects presented might be noticed a table of choice varieties of everblooming Roses, and a very handsome plant—the Spiræa Reevesiana, a recently introduced species, and for the first time shown before the society, will prove an acquisition. Another collection of select and mostly new kinds of Roses and Pansies, were shown by Chalmers and McDonald, Camden, N. J. A table of remarkably fine Pelargonia, by Robert Buist. James Bisset, gardener to James Dundas, exhibited fine specimens of hothouse plants, Pelargonia and Polyanthi. B. Daniels, gardener to the president, green house plants, Pelargonia and Hyacinths. Benjamin Gulliss exhibited a collection of plants in pots, of fine growth. Robert Kilvington, as usual, had a display of interesting "natives" in pots, and a handsome bouquet of the same. Dr. A. W. Mitchell, presented a beautiful cluster of the flowers of Cattleya labiata.

Of fruits, the president's gardener exhibited a dish of grapes of the Tokay and Sweet Water Varieties, also some strawberries and Raspberries. James Bisset, bunches of the black Hamburgh grape.

Of vegetables, B. Daniels presented a rich display, all new and cut during the day, consisting of cucumbers, asparagus, potatoes, peas, cauliflowers, rhubarb, squashes, kidney beans, tomatoes, sea-kale, lettuce, radishes, spinach and capsicums.

Anthony Felten, two very full tables of fine specimens.

Premiums were awarded as follow:

For the best ten pelargonia, in pots, to Robert Buist; for the second best, ditto, to James Bisset, gardener to James Dundas; for the third best, ditto, to B. Daniels, gardener to Caleb Cope; for the best ten ever-blooming Roses, to Chalmers & McDonald, Camden, N. J.; for the second best, ditto, to John Sherwood; for the third best, ditto, to Chalmers & McDonald; for the best six Hyacinths, to B. Daniels; for the best six Pansies, to Chalmers and McDonald; for the second best Pansies, to Matthew Mills; for the best six Polyanthus, to James Bisset; for the best hot house plants, to Jas. Bisset; for the best green house plants, to B. Daniels; for the most interesting collection of plants in pots, to Benjamin Gulliss; for the best display of indigenous plants in pots, to Robert Kilvington; for the best bouquet, to B. Daniels; for the second best, to Miss Gratz's gardener; for the best basket of flowers, to B. Daniels; for the best indigenous bouquet, to Robert Kilvington.

The committee on fruit, awarded special premiums of three dollars each, to Ben. Daniels, gardener to C. Cope, for white Tokay and Sweet Water Grapes, and to James Bisset, gardener to Jas. Dundas, for black Hamburgh grapes.

The committee on vegetables awarded premiums—for the best cucumbers, two in number, to B. Daniels; for the second best, ditto, to Anthony Felten; for the best cauliflowers, three heads, to Anthony Felten; for the best sea-kale, six plants, to B. Daniels; for the best asparagus, to Isaac B. Baxter; for the second best asparagus, to B. Daniels; for the best rhubarb, to A. Felten; for the most interesting display of vegetables, by market gardeners, to A. Felten; for the second best, ditto, to the same; for the best display by amateur gardeners, to B. Daniels.

The secretary reported a communication from Mr. C. M. Hovey, Boston, accompanying which were scions of desirable pears and apples, a present to members of the society, which he had delivered to the committee for distribution, and were accordingly disseminated. On motion, ordered that the thanks of the society be tendered to Mr. Hovey for the present.

Members elected.—Geo. Wainwright, Joseph Mevius and Jacob Mevius.

On motion, adjourned. *Tho. P. James, Rec. Sec.*

NEW-YORK STATE AGRICULTURAL SOCIETY.

HORTICULTURAL DEPARTMENT.

We copy the List of Premiums to be awarded on Fruits, Flowers, &c., at this Society's Annual Exhibition, to be held at Buffalo, on the 12th, 13th and 14th days of September next.

APPLES.

For the greatest and best variety of good table apples, 3 of each variety, named and labelled, grown by exhibitor. Diploma and $10. For the 2d best, $5. For the 3d best, Trans.

For the best 12 varieties of table apples, $5. For the 2d best, Trans. and $2.

For the best six winter varieties, $3. For the 2d best, Trans. and $2.

For the best fall seedling apple, for all purposes, with description of tree, history of its origin, &c ;—one dozen specimens to be exhibited, $5. For the 2d best, $2.

PEARS.

For the greatest number of varieties of good pears named and labelled, Diploma and $10. For the 2d best, $5. For the 3d best, Trans.

For the best collection of first rate autumn pears, named and labelled, Dip and $5. For the 2d best, Trans. and $2.

For the largest and best collection of winter pears, named and labelled, Dip. and $5. For the 2d best, Trans. and $2

For the best collection of newly indroduced pears, with a description, &c., Dip. and $10.

PEACHES.

For the best 12 varieties, labelled, Dip. and $5. For the 2d best, $2.

For the best 6 varieties, labelled, $3. For the 2d best, $2.

For the best 12 peaches, $2. For the 2d best, Trans.

For the best seedling variety, 6 specimens, $3. For the 2d best, $2.

PLUMS.

For the best collection of plums, 6 specimens each variety, Dip. and $5. For the 2d best, $3

For the best 6 varieties of good plums, 6 specimens each, $3. For the 2d best, $2.

For the best 12 plums, choice variety, $2. For the 2d best, Trans.

For the best seedling plum, with description, Dip. and $2. For the 2d best, $5.

NECTARINES AND APRICOTS.

For the best and greatest number of good varieties, 6 specimens each, labelled, $3. For the 2d best, $2.

For the best 12 specimens of any good variety, $2. For the 2d best, Trans.

QUINCES.

For the best 12 quinces of any variety, $3. For the 2d best, $2. For the 3d best, Trans.

GRAPES.

For the best and most extensive collection of good native grapes, grown in open air, $5. For the 2d best, $2.

For the best 3 varieties of native or foreign grapes, grown under glass, 3 bunches to be shown, $5. For the 2d best, $2.

For the best dish of native grapes, Trans.

WATERMELONS.

For the best 6 specimens of any variety, $3. For the 2d best, $2.

MUSKMELONS.

For the best 6 specimens of any variety, $3. For the 2d best, $2.

CRANBERRIES.

Best peck of domestic culture, $8. For the 2d best, $5.

To be accompanied with a full description of the manner of cultivation, nature of soil, &c.

Any premiums may be withheld in the discretion of the committee, if the samples exhibited are not worthy of a premium.

The fruit exhibited for which premiums are awarded, to be at the disposal of the committee.

12 volumes of Downing, common edition, and 12 of Thomas' Fruit Cult., will be awarded by the committee, in their discretion, for choice fruits not enumerated.

SEEDLING APPLES, to be awarded at winter meeting—For the best new seedling variety of winter apples, of decidedly superior quality, and valuable for exportation,—one dozen specimens to be exhibited, together with a history of its origin, description of the growth, character and habits of the tree, and the growing of the fruit—such fruit to be adjudged by the committee as of the first character for orchard purposes, Diploma and $10. For the 2d best, $5.

The above new seedling variety to be sent to B. P. Johnson, Secretary, Agricultural Rooms, Albany, before the 15th of January, 1849, for examination.

FLOWERS—PROFESSIONAL LIST.

Greatest variety and quantity of flowers, $5.

Dahlias.

Greatest variety, $5. Best 24 dissimilar blooms, $3.

Roses.

Greatest variety, $5. Best 24 dissimilar blooms, $3.

Phloxes.

Best 10 varieties, $3. Best seedling, $2.

Verbenas.

Greatest variety and number, $3. Best 12 varieties, $2. Best seedling, $2

German Asters.

Best Collection, $2.

Pansies.

Best and greatest variety, $3. Best 24 varieties, $2.

AMATEUR LIST.

Greatest variety and quantity of flowers, Silver Medal.

Dahlias.

Greatest variety, Silver Medal. Best twelve dissimilar blooms, $3.

Roses.

Greatest variety, Silver Medal. Best twelve dissimilar blooms, $3.

Phloxes.

Best 6 varieties, $3. Best seedling, $2.

Verbenas

Greatest variety, $3. Best 12 varieties, $2. Best seedling, $2.

German Asters.

Best collection, $3.

Pansies.

Best and greatest variety, $3. Best 12 varieties, $2.

GENERAL LIST—*Open to all Competitors.*

Best collection of green-house plants, owned by one person, Silver Medal.

Best floral design, Silver Medal. Second best, $3.

Best floral ornament, Silver Medal. Second best, $3.

Best hand bouquet, "flat," $3. Second best, $2. Third best, Wash. Let.

Best hand bouquet, "round," $3. Second best, $2. Third best, Wash. Let.

Best and largest basket bouquet with handle, $3. Second best, $2.

For the most beautifully arranged basket of flowers, Dip.

Best floral exhibition of any Horticultural Society, Gold Medal.

VEGETABLES.

12 best stalks celery,	$3
6 best heads cauliflower,	3
6 best heads broccoli,	3
12 best white table turnips,	3
12 best carrots,	3
12 best table beets,	3
12 best parsnips,	3
12 best onions,	3
3 best heads of cabbage,	3
12 best tomatoes,	3
2 best purple egg plants,	3
12 best sweet potatoes,	3
Best half peck Lima beans,	3
Best half peck Windsor beans,	3
Best bunch double parsley,	3
Three best squashes,	3
Largest pumpkin,	3
12 best ears seed corn,	3
Best half peck table potatoes,	3
Second best,	3
Best seedling potato,	3
For the best and greatest variety of seedling potatoes of approved varieties,	10
Best and greatest variety of vegetables raised by exhibitor,	10

Discretionary premiums will be awarded on choice garden products not above enumerated.

AN ANGLO-ITALIAN VILLA.

[Hort: June, 1848.]